

# SEQUENCE LISTING

<110> Wright, David A.  
Voytas, Daniel F.

<120> Plant Retroelements and Methods Related Thereto

<130> P-1065 ISURF Plant Retroelement

<140> unknown

<141> 1999-05-28

<150> 60/087125

<151> 1998-05-29

<160> 42

<170> PatentIn Ver. 2.0

<210> 1

<211> 18

<212> DNA

<213> Glycine max

<400> 1

tggcgcgcgtt gccaatg

18

<210> 2

<211> 18

<212> DNA

<213> Glycine max

<400> 2

tggcgcgcgtt gtcgggga

18

<210> 3

<211> 6

<212> DNA

<213> Glycine max

<400> 3

ttgggg

6

<210> 4

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant  
retroelement sequence

<400> 4

Met Ala Ser Arg Lys Arg Lys

1

5

<210> 5

<211> 1263

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant  
retroelement sequence

<400> 5

atggcctccc gtaaacgcaa agctgtgccc acacccgggg aagcgtccaa ctgggactct 60  
tcacgtttca ctttcgagat tgcttggcac agataccagg atagcattca gctccggaac 120  
atccttccag agaggaatgt agagcttggg ccagggatgt ttgatgagtt cctgcaggaa 180  
ctccagaggc tcagatggga ccaggttctg acccgacttc cagagaagtg gattgatgtt 240  
gctctggtga aggagtttta ctccaaccta tatgatccag aggaccacag tccgaagttt 300  
tggagtgttc gaggacaggt tgtgagattt gatgctgaga cgattaatga tttcctcgac 360  
accccggtca tcttggcaga gggagaggat tatccagcct actctcagta cctcagcact 420  
cctccagacc atgatgccat cttttccgct ctgtgtactc cagggggacg atttgttctg 480  
aatgttgata gtgccccctg gaagctgctg cggaaggatc tgatgacgct cgcgcagaca 540  
tggagtgtgc tctcttattt taaccttgca ctgacttttc acacttctga tattaatgtt 600  
gacagggccc gactcaatta tggcttgggt atgaagatgg acctggacgt gggcagcctc 660  
atttctcttc agatcagtca gatcgcccag tccatcactt ccaggcttgg gttcccagcg 720  
ttgatcacia cactgtgtga gattcagggg gttgtctctg ataccctgat ttttgagtca 780  
ctcagtcttg tgatcaacct tgcctacatt aagaagaact gctggaacct tgccgatcca 840  
tctatcacat ttcaggggac ccgcgcacg cgcaccagag cttcggcgct ggcatctgag 900  
gctcctcttc catcccagca tcttctcag cctttttccc agagaccacg gcctccactt 960  
ctatccacct cagcacctcc atacatgcat ggacagatgc tcaggtcctt gtaccagggg 1020  
cagcagatca tcattcagaa cctgtatcga ttgtccctac atttgcagat ggatctgcca 1080  
ctcatgactc cggaggccta tcgtcagcag gtccccaagc taggagacca gccctccact 1140  
gacagggggg aagagccttc tggagccgct gctactgagg atcctgccgt tgatgaagac 1200  
ctcatagctg acttggcttg cgctgattgg agcccatggg cagacttggg cagaggcagc 1260  
tga 1263

<210> 6

<211> 421

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant  
retroelement sequence

<400> 6

Met Ala Ser Arg Lys Arg Lys Ala Val Pro Thr Pro Gly Glu Ala Ser

1

5

10

15

Asn Trp Asp Ser Ser Arg Phe Thr Phe Glu Ile Ala Trp His Arg Tyr  
                   20                                  25                                  30

Gln Asp Ser Ile Gln Leu Arg Asn Ile Leu Pro Glu Arg Asn Val Glu  
                   35                                  40                                  45

Leu Gly Pro Gly Met Phe Asp Glu Phe Leu Gln Glu Leu Gln Arg Leu  
                   50                                  55                                  60

Arg Trp Asp Gln Val Leu Thr Arg Leu Pro Glu Lys Trp Ile Asp Val  
                   65                                  70                                  75                                  80

Ala Leu Val Lys Glu Phe Tyr Ser Asn Leu Tyr Asp Pro Glu Asp His  
                                   85                                  90                                  95

Ser Pro Lys Phe Trp Ser Val Arg Gly Gln Val Val Arg Phe Asp Ala  
                                   100                                  105                                  110

Glu Thr Ile Asn Asp Phe Leu Asp Thr Pro Val Ile Leu Ala Glu Gly  
                   115                                  120                                  125

Glu Asp Tyr Pro Ala Tyr Ser Gln Tyr Leu Ser Thr Pro Pro Asp His  
                   130                                  135                                  140

Asp Ala Ile Leu Ser Ala Leu Cys Thr Pro Gly Gly Arg Phe Val Leu  
                   145                                  150                                  155                                  160

Asn Val Asp Ser Ala Pro Trp Lys Leu Leu Arg Lys Asp Leu Met Thr  
                                   165                                  170                                  175

Leu Ala Gln Thr Trp Ser Val Leu Ser Tyr Phe Asn Leu Ala Leu Thr  
                   180                                  185                                  190

Phe His Thr Ser Asp Ile Asn Val Asp Arg Ala Arg Leu Asn Tyr Gly  
                   195                                  200                                  205

Leu Val Met Lys Met Asp Leu Asp Val Gly Ser Leu Ile Ser Leu Gln  
                   210                                  215                                  220

Ile Ser Gln Ile Ala Gln Ser Ile Thr Ser Arg Leu Gly Phe Pro Ala  
                   225                                  230                                  235                                  240

Leu Ile Thr Thr Leu Cys Glu Ile Gln Gly Val Val Ser Asp Thr Leu  
                   245                                  250                                  255

Ile Phe Glu Ser Leu Ser Pro Val Ile Asn Leu Ala Tyr Ile Lys Lys  
                   260                                  265                                  270

Asn Cys Trp Asn Pro Ala Asp Pro Ser Ile Thr Phe Gln Gly Thr Arg  
                   275                                  280                                  285

Arg Thr Arg Thr Arg Ala Ser Ala Ser Ala Ser Glu Ala Pro Leu Pro  
290 295 300

Ser Gln His Pro Ser Gln Pro Phe Ser Gln Arg Pro Arg Pro Pro Leu  
305 310 315 320

Leu Ser Thr Ser Ala Pro Pro Tyr Met His Gly Gln Met Leu Arg Ser  
325 330 335

Leu Tyr Gln Gly Gln Gln Ile Ile Ile Gln Asn Leu Tyr Arg Leu Ser  
340 345 350

Leu His Leu Gln Met Asp Leu Pro Leu Met Thr Pro Glu Ala Tyr Arg  
355 360 365

Gln Gln Val Ala Lys Leu Gly Asp Gln Pro Ser Thr Asp Arg Gly Glu  
370 375 380

Glu Pro Ser Gly Ala Ala Ala Thr Glu Asp Pro Ala Val Asp Glu Asp  
385 390 395 400

Leu Ile Ala Asp Leu Ala Gly Ala Asp Trp Ser Pro Trp Ala Asp Leu  
405 410 415

Gly Arg Gly Ser Glx  
420

<210> 7

<211> 1596

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant  
retroelement sequence

<400> 7

```
atgcgaggta gaactgcata tggagacgtt gttcctatta acttagaaat tgaagctacg 60
tgtcggcgta acaacgctgc aagaagaaga agggagcaag acatagaagg aagtagttac 120
acctcacctc ctcttctctc aaattatgct cagatggacg gggaaccggc acaaagagtc 180
acactagagg acttctctaa taccaccact cctcagttct ttacaagtat cacaaggccg 240
gaagtccaag cagatctcct tactcaaggg aacctcttcc atggtcttcc aaatgaagat 300
ccatatgcgc atctagcctc atacatagag atatgcagca ccgttaaaat cgccggagtt 360
ccaaaagatg cgatactcct taacctcttt tccttttccc tagcaggaga ggcaaaaaga 420
tggttgcaat cctttaaagg caatagctta agaacatggg aagaagtagt ggaaaaattc 480
ttaaagaagt atttccaga gtcaaagacc gtcgaacgaa agatggagat ttcttatttc 540
catcaatttc tggatgaatc ccttagcgaa gcaactagacc atttccacgg attgctaaga 600
aaaacaccaa cacacagata cagcgagcca gtacaactaa acatattcat cgatgacttg 660
caactcttaa tcgaaacagc tactagaggg aagatcaagc tgaagactcc cgaagaagcg 720
```

```

atggagctcg tcgagaacat ggcggctagc gatcaagcaa tccttcatga tcacacttat 780
gttcccacaa aaagaagcct cttggagctt agcacgcagg acgcaacttt ggtacaaaaac 840
aagctgttga cgaggcagat agaagccctc atcgaaaccc tcagcaagct gcctcaacaa 900
ttacaagcga taagttcttc ccaactcttct gttttgcagg tagaagaatg ccccatatgc 960
agagggacac atgagcctgg acaatgtgca agccaacaag acccctctcg tgaagtaa at 1020
tatataggca tactaaatcg ttacggattt cagggctaca accagggaaa tccatctgga 1080
ttcaatcaag gggcaacaag atttaatcac gagccaccgg ggtttaatca aggaagaaac 1140
ttcatgcaag gctcaagttg gacgaataaa ggaaatcaat ataaggagca aaggaaccaa 1200
ccaccatacc agccaccata ccagcaccct agccaaggtc cgaatcagca agaaaagccc 1260
accaaataag aggaactgct gctgcaattc atcaaggaga caagatcaca tcaaaagagc 1320
acggatgcag ccattcgga tctagaagtt caaatgggccc aactggcgca tgacaaagcc 1380
gaacggccca ctagaacttt cgggtgctaac atggagagaa gaaccccaag gaaggataaa 1440
gcagtactga ctagagggca gagaagagcg caggaggagg gtaaggttga aggagaagac 1500
tggccagaag aaggaaggac agagaagaca gaagaagaag agaaggtggc agaagaacct 1560
aagcgtacca agagccagag agcaaggga gccaag 1596

```

<210> 8

<211> 532

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant  
retroelement sequence

<400> 8

```

Met Arg Gly Arg Thr Ala Ser Gly Asp Val Val Pro Ile Asn Leu Glu
  1             5             10             15

Ile Glu Ala Thr Cys Arg Arg Asn Asn Ala Ala Arg Arg Arg Arg Glu
      20             25             30

Gln Asp Ile Glu Gly Ser Ser Tyr Thr Ser Pro Pro Pro Ser Pro Asn
      35             40             45

Tyr Ala Gln Met Asp Gly Glu Pro Ala Gln Arg Val Thr Leu Glu Asp
      50             55             60

Phe Ser Asn Thr Thr Thr Pro Gln Phe Phe Thr Ser Ile Thr Arg Pro
      65             70             75             80

Glu Val Gln Ala Asp Leu Leu Thr Gln Gly Asn Leu Phe His Gly Leu
      85             90             95

Pro Asn Glu Asp Pro Tyr Ala His Leu Ala Ser Tyr Ile Glu Ile Cys
      100            105            110

Ser Thr Val Lys Ile Ala Gly Val Pro Lys Asp Ala Ile Leu Leu Asn
      115            120            125

Leu Phe Ser Phe Ser Leu Ala Gly Glu Ala Lys Arg Trp Leu His Ser

```

130

135

140

Phe Lys Gly Asn Ser Leu Arg Thr Trp Glu Glu Val Val Glu Lys Phe  
 145 150 155 160

Leu Lys Lys Tyr Phe Pro Glu Ser Lys Thr Val Glu Arg Lys Met Glu  
 165 170 175

Ile Ser Tyr Phe His Gln Phe Leu Asp Glu Ser Leu Ser Glu Ala Leu  
 180 185 190

Asp His Phe His Gly Leu Leu Arg Lys Thr Pro Thr His Arg Tyr Ser  
 195 200 205

Glu Pro Val Gln Leu Asn Ile Phe Ile Asp Asp Leu Gln Leu Leu Ile  
 210 215 220

Glu Thr Ala Thr Arg Gly Lys Ile Lys Leu Lys Thr Pro Glu Glu Ala  
 225 230 235 240

Met Glu Leu Val Glu Asn Met Ala Ala Ser Asp Gln Ala Ile Leu His  
 245 250 255

Asp His Thr Tyr Val Pro Thr Lys Arg Ser Leu Leu Glu Leu Ser Thr  
 260 265 270

Gln Asp Ala Thr Leu Val Gln Asn Lys Leu Leu Thr Arg Gln Ile Glu  
 275 280 285

Ala Leu Ile Glu Thr Leu Ser Lys Leu Pro Gln Gln Leu Gln Ala Ile  
 290 295 300

Ser Ser Ser His Ser Ser Val Leu Gln Val Glu Glu Cys Pro Thr Cys  
 305 310 315 320

Arg Gly Thr His Glu Pro Gly Gln Cys Ala Ser Gln Gln Asp Pro Ser  
 325 330 335

Arg Glu Val Asn Tyr Ile Gly Ile Leu Asn Arg Tyr Gly Phe Gln Gly  
 340 345 350

Tyr Asn Gln Gly Asn Pro Ser Gly Phe Asn Gln Gly Ala Thr Arg Phe  
 355 360 365

Asn His Glu Pro Pro Gly Phe Asn Gln Gly Arg Asn Phe Met Gln Gly  
 370 375 380

Ser Ser Trp Thr Asn Lys Gly Asn Gln Tyr Lys Glu Gln Arg Asn Gln  
 385 390 395 400

Pro Pro Tyr Gln Pro Pro Tyr Gln His Pro Ser Gln Gly Pro Asn Gln

405

410

415

Gln Glu Lys Pro Thr Lys Ile Glu Glu Leu Leu Leu Gln Phe Ile Lys  
420 425 430

Glu Thr Arg Ser His Gln Lys Ser Thr Asp Ala Ala Ile Arg Asn Leu  
435 440 445

Glu Val Gln Met Gly Gln Leu Ala His Asp Lys Ala Glu Arg Pro Thr  
450 455 460

Arg Thr Phe Gly Ala Asn Met Glu Arg Arg Thr Pro Arg Lys Asp Lys  
465 470 475 480

Ala Val Leu Thr Arg Gly Gln Arg Arg Ala Gln Glu Glu Gly Lys Val  
485 490 495

Glu Gly Glu Asp Trp Pro Glu Glu Gly Arg Thr Glu Lys Thr Glu Glu  
500 505 510

Glu Glu Lys Val Ala Glu Glu Pro Lys Arg Thr Lys Ser Gln Arg Ala  
515 520 525

Arg Glu Ala Lys  
530

<210> 9

<211> 603

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant  
retroelement sequence

<400> 9

tgtgataaat gccagagaac aggggggata tctcgaagaa atgagatgcc tttgcagaat 60  
atcatggaag tagagatctt tgactgttgg ggcatagact tcatggggcc ttttccttcg 120  
tcatacggga atgtctacat cttggtagct gtggattacg tctccaaatg ggtggaagcc 180  
atagccacgc caaaggacga tgccagggta gtgatcaaat ttctgaagaa gaacattttt 240  
tcccgttttg gagtcccacg agccttgatt agtgataggg gaacgcactt ctgcaacaat 300  
cagttgaaga aagtcctgga gcactataat gtccgacata aggtggccac accttatcac 360  
cctcagacaa atggccaagc agaaatttct aacaggggagc tcaagcgaat cctggaaaag 420  
acagttgcat caacaagaaa ggattggtcc ttgaagctcg atgatgctct ctgggcctat 480  
aggacagcgt tcaagactcc catcggtta tcaccatttc agctagtgtg tgggaaggca 540  
tgtcatttac cagtggagct ggagtacaaa gcatattggg ctctcaagtt gctcaacttt 600  
gac 603

<210> 10

<211> 201

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant  
retroelement sequence

<400> 10

Cys Asp Lys Cys Gln Arg Thr Gly Gly Ile Ser Arg Arg Asn Glu Met  
1 5 10 15

Pro Leu Gln Asn Ile Met Glu Val Glu Ile Phe Asp Cys Trp Gly Ile  
20 25 30

Asp Phe Met Gly Pro Phe Pro Ser Ser Tyr Gly Asn Val Tyr Ile Leu  
35 40 45

Val Ala Val Asp Tyr Val Ser Lys Trp Val Glu Ala Ile Ala Thr Pro  
50 55 60

Lys Asp Asp Ala Arg Val Val Ile Lys Phe Leu Lys Lys Asn Ile Phe  
65 70 75 80

Ser Arg Phe Gly Val Pro Arg Ala Leu Ile Ser Asp Arg Gly Thr His  
85 90 95

Phe Cys Asn Asn Gln Leu Lys Lys Val Leu Glu His Tyr Asn Val Arg  
100 105 110

His Lys Val Ala Thr Pro Tyr His Pro Gln Thr Asn Gly Gln Ala Glu  
115 120 125

Ile Ser Asn Arg Glu Leu Lys Arg Ile Leu Glu Lys Thr Val Ala Ser  
130 135 140

Thr Arg Lys Asp Trp Ser Leu Lys Leu Asp Asp Ala Leu Trp Ala Tyr  
145 150 155 160

Arg Thr Ala Phe Lys Thr Pro Ile Gly Leu Ser Pro Phe Gln Leu Val  
165 170 175

Tyr Gly Lys Ala Cys His Leu Pro Val Glu Leu Glu Tyr Lys Ala Tyr  
180 185 190

Trp Ala Leu Lys Leu Leu Asn Phe Asp  
195 200

<210> 11

<211> 600



<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: plant  
retroelement sequence

<400> 11  
ttggaggctg gggtcatata ccccatctct gacagcgctt gggtaagccc agtacagggtg 60  
gttcccaaga aagggtggaat gacagtggta cgagatgaga ggaatgactt gataccaaca 120  
cgaactgtca ctgggtggcg aatgtgtatc gactatcgca agctgaatga agccacacgg 180  
aaggaccatt tcccccttacc ttctcatggat cagatgctgg agagacttgc agggcaggca 240  
tactactggt tcttggatgg atactcggga tacaaccaga tcgcggtaga cccagagat 300  
caggagaaga cggcctttac atgccccctt ggcgtctttg cttacagaag gatgccattc 360  
gggttatgta atgcaccagc cacatttcag aggtgcatgc tggccatttt ttcagacatg 420  
gtggagaaaa gcatcgaggt atttatggac gacttctcgg tttttggacc ctcatttgac 480  
agctgtttga ggaacctaga gaggtactt cagaggtgcg aagagactaa cttggtactg 540  
aattgggaaa agtgtcattt catggttcga gagggcatag tcctaggcca caagatctca 600

<210> 12  
<211> 200  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: plant  
retroelement sequence

<400> 12  
Leu Glu Ala Gly Leu Ile Tyr Pro Ile Ser Asp Ser Ala Trp Val Ser  
1 5 10 15  
Pro Val Gln Val Val Pro Lys Lys Gly Gly Met Thr Val Val Arg Asp  
20 25 30  
Glu Arg Asn Asp Leu Ile Pro Thr Arg Thr Val Thr Gly Trp Arg Met  
35 40 45  
Cys Ile Asp Tyr Arg Lys Leu Asn Glu Ala Thr Arg Lys Asp His Phe  
50 55 60  
Pro Leu Pro Phe Met Asp Gln Met Leu Glu Arg Leu Ala Gly Gln Ala  
65 70 75 80  
Tyr Tyr Cys Phe Leu Asp Gly Tyr Ser Gly Tyr Asn Gln Ile Ala Val  
85 90 95  
Asp Pro Arg Asp Gln Glu Lys Thr Ala Phe Thr Cys Pro Phe Gly Val  
100 105 110  
Phe Ala Tyr Arg Arg Met Pro Phe Gly Leu Cys Asn Ala Pro Ala Thr

115	120	125
Phe Gln Arg Cys Met Leu Ala Ile Phe Ser Asp Met Val Glu Lys Ser		
130	135	140
Ile Glu Val Phe Met Asp Asp Phe Ser Val Phe Gly Pro Ser Phe Asp		
145	150	155 160
Ser Cys Leu Arg Asn Leu Glu Arg Val Leu Gln Arg Cys Glu Glu Thr		
165	170	175
Asn Leu Val Leu Asn Trp Glu Lys Cys His Phe Met Val Arg Glu Gly		
180	185	190
Ile Val Leu Gly His Lys Ile Ser		
195	200	

<210> 13  
 <211> 858  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Description of Artificial Sequence: plant  
 retroelement sequence

<400> 13  
 aaggaagaac cactagccct tccacaggat ctcccatatc ctatggcacc caccaagaag 60  
 aacaaggagc gttactttgc acgtttcttg gaaatattca aagggttaga aatcactatg 120  
 ccattcgggg aagccttaca gcagatgccc ctctactcca aatttatgaa agacatcctc 180  
 accaagaagg ggaagtatat tgacaacgag aatattgtgg taggaggcaa ttgcagtgcg 240  
 ataatacaaa ggattctacc caagaagttt aaagaccccg gaagtgttac catcccgtgc 300  
 accattggga aggaagccgt aaacaaggcc ctcatgtatc taggagcaag tatcaatctg 360  
 atgcccttgt caatgtgcaa aagaattggg aatttgaaga tagatcccac caagatgacg 420  
 cttcaactgg cagaccgctc aatcacaagg ccatatgggg tggtagaaga tgtcctgggc 480  
 aaggtacgcc acttcacttt tccgggtggac tttgttatca tggatatcga agaagacact 540  
 gagattcccc ttatcttagg cagacccttc atgctgactg ccaactgtgt ggtggatatg 600  
 gggaaaggga acttagagtt gactattgat aatcagaaga tcacctttga ccttatcaag 660  
 gcaatgaagt acccacagga gggttggaag tgcttcagaa tagaggagat tgatgaggaa 720  
 gatgtcagtt ttctcgagac accaaagact tcgctagaaa aagcaatggt aaatcattta 780  
 gactgtctaa ccagtgaaga ggaagaagat ctgaaggctt gcttggaaaa cttggatcaa 840  
 gaagacagta ttcctgag 858

<210> 14  
 <211> 286  
 <212> PRT  
 <213> Artificial Sequence  
 <220>  
 <223> Description of Artificial Sequence: plant

retroelement sequence

<400> 14

Lys Glu Glu Pro Leu Ala Leu Pro Gln Asp Leu Pro Tyr Pro Met Ala  
1 5 10 15

Pro Thr Lys Lys Asn Lys Glu Arg Tyr Phe Ala Arg Phe Leu Glu Ile  
20 25 30

Phe Lys Gly Leu Glu Ile Thr Met Pro Phe Gly Glu Ala Leu Gln Gln  
35 40 45

Met Pro Leu Tyr Ser Lys Phe Met Lys Asp Ile Leu Thr Lys Lys Gly  
50 55 60

Lys Tyr Ile Asp Asn Glu Asn Ile Val Val Gly Gly Asn Cys Ser Ala  
65 70 75 80

Ile Ile Gln Arg Ile Leu Pro Lys Lys Phe Lys Asp Pro Gly Ser Val  
85 90 95

Thr Ile Pro Cys Thr Ile Gly Lys Glu Ala Val Asn Lys Ala Leu Ile  
100 105 110

Asp Leu Gly Ala Ser Ile Asn Leu Met Pro Leu Ser Met Cys Lys Arg  
115 120 125

Ile Gly Asn Leu Lys Ile Asp Pro Thr Lys Met Thr Leu Gln Leu Ala  
130 135 140

Asp Arg Ser Ile Thr Arg Pro Tyr Gly Val Val Glu Asp Val Leu Val  
145 150 155 160

Lys Val Arg His Phe Thr Phe Pro Val Asp Phe Val Ile Met Asp Ile  
165 170 175

Glu Glu Asp Thr Glu Ile Pro Leu Ile Leu Gly Arg Pro Phe Met Leu  
180 185 190

Thr Ala Asn Cys Val Val Asp Met Gly Lys Gly Asn Leu Glu Leu Thr  
195 200 205

Ile Asp Asn Gln Lys Ile Thr Phe Asp Leu Ile Lys Ala Met Lys Tyr  
210 215 220

Pro Gln Glu Gly Trp Lys Cys Phe Arg Ile Glu Glu Ile Asp Glu Glu  
225 230 235 240

Asp Val Ser Phe Leu Glu Thr Pro Lys Thr Ser Leu Glu Lys Ala Met  
245 250 255

Val Asn His Leu Asp Cys Leu Thr Ser Glu Glu Glu Glu Asp Leu Lys  
 260 265 270

Ala Cys Leu Glu Asn Leu Asp Gln Glu Asp Ser Ile Pro Glu  
 275 280 285

<210> 15

<211> 192

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant  
 retroelement sequence

<400> 15

tttgaactaa tgtgtgatgc cagtgattat gcagtaggag cagttttggg acagaggaaa 60  
 gacaaggat ttcacgccat ctattatgct agcaaggccc tgaatgaagc acagttgaat 120  
 tatgcaacca cagaaaagga gatgctagcc attgtctttg ccttggagaa gtccaggtca 180  
 tacttgatag gg 192

<210> 16

<211> 64

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant  
 retroelement sequence

<400> 16

Phe Glu Leu Met Cys Asp Ala Ser Asp Tyr Ala Val Gly Ala Val Leu  
 1 5 10 15

Gly Gln Arg Lys Asp Lys Val Phe His Ala Ile Tyr Tyr Ala Ser Lys  
 20 25 30

Val Leu Asn Glu Ala Gln Leu Asn Tyr Ala Thr Thr Glu Lys Glu Met  
 35 40 45

Leu Ala Ile Val Phe Ala Leu Glu Lys Phe Arg Ser Tyr Leu Ile Gly  
 50 55 60

<210> 17

<211> 12286

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant  
retroelement sequence

<400> 17

tgataactgc taaataattg tgaattaata gtagaaaatt agtcaaattt tggcttaaaa 60  
ttaattatatt agcagttatt tgtgattaaa agttagaaaa gcaattaagt tgaatttttg 120  
gccatagata tgaaaactga aggtacaaca agcaaaaggc agcagaaagt gaagaaaaag 180  
aataaaatct gaagcagacc cagccaaca cgcgccctta gcgcgcgtca cgcgcctaagc 240  
ttgcaaggca gcacaggcac taagcgaggc gttaagcacg aagatgcagg attcgttacg 300  
tgcgctaagc gcgaggcaca cgctaagcgc gcgatccaac agaagcacac gctaagcctg 360  
cagcatgcmc taagcgcmc tacgaaggcc caaagcccat ttctacacct ataaatagag 420  
atccaagcca agggagaatg tacaccttgc ctgagagcac ttctctcagc attccaagct 480  
tgagctctcc cttttctctc tatattcttt gcttttatta tccattcttt ctttcacccc 540  
agttgtaaag cccctcaatg gccatgagtg gttaatcccc tagctacggc ctggtaggcc 600  
taaaaagcca atgatgtatg gtgtacttca agagttatca atgcaaagag gattcattcc 660  
aggttttatg ttctaattct ttccctttta tottgcatth atgtcttaaa tttctgttg 720  
gtttttattcg ctcgggagag ggtatttctt aataagggtt taagaagtaa tgcattgcac 780  
agtttttaggg gttatacgtc ttggtaaagg taacacctaa tagaacaat taagaaaagg 840  
atcgctggggc tagcattgct aggcatagaa tgatggccca atgcccatgc atttagcaac 900  
atctagaatt taaccttaat gcattttaat tattgaatct tcacaaaggc atttgggaga 960  
taggtagtta aaataggctt gtcactgtga ggcattcaagg gcaagtaaaa ttaatagatg 1020  
tgggtagaac taattcaact gcattggtaa tgaacatcat aaattcattc atcgtaggcc 1080  
aattagggtt gtccggtctt ggcattttca tcaattgtct tctaaatta tttgatctaa 1140  
tagcaacaat ttattcttat gctattctct gtttttacta tttactttta cttacaaatt 1200  
gaagagtatt caataaagtg caataaaatc cctatggaaa cgatactcgg acttccgaga 1260  
attactactt agaacgattt ggtacacttg tcaaacacct caacaagttt ttggcgccgt 1320  
tgtcggggat tttgttctcg cacttaattg ccatactata ttagtttgta agcttaattc 1380  
ttcttttctt ggctcattct tttattatct tttactttac tttttctct atcctttctt 1440  
tcttctccca taaattgcac gggtagtgcc tttttgtttt tatgcgaggt agaactgcat 1500  
ctggagacgt tgttcctatt aacttagaaa ttgaagctac gtgtcggcgt aacaacgctg 1560  
caagaagaag aaggagcaa gacatagaag gaagtagtta cacctcacct cctccttctc 1620  
caaattatgc tcagatggac ggggaaccgg cacaagagt cacttagag gacttctcta 1680  
ataccaccac tctcagttc tttacaagta tcacaaggcc ggaagtcca gcagatctcc 1740  
ttactcaagg gaacctcttc catggtcttc caaatgaaga tccatagcg catctagcct 1800  
catacataga gatatgcagc accgttaaaa tcgccggagt tccaaaagat gcgatactcc 1860  
ttaacctctt ttctttttcc ctgacaggag agggcaaaaag atggttgac tcttttaaag 1920  
gcaatagctt aagaacatgg gaagaagtag tggaaaaatt cttaagaag tatttcccag 1980  
agtcaaagac cgtcgaacga aagatggaga tttcttattt ccatcaattt ctggatgaat 2040  
cccttagcga agcactagac catttccacg gattgctaag aaaaacacca acacacagat 2100  
acagcgagcc agtacaacta aacatattca tcgatgactt gcaactctta atcgaaacag 2160  
ctactagagg gaagatcaag ctgaagactc ccgaagaagc gatggagctc gtcgagaaca 2220  
tggcggctag cgatcaagca atccttcag atcacactta tgttcccaca aaaagaagcc 2280  
tcttgagct tagcacgcag gacgcaactt tggtaaaaa caagctgttg acgaggcaga 2340  
tagaagccct catcgaaacc ctgagcaagc tgctcaaca attacaagcg ataagttctt 2400  
cccactcttc tgttttgag gtagaagaat gcccacatg cagagggaca catgagcctg 2460  
gacaatgtgc aagccaacaa gacctctctc gtgaagtaaa ttatatagga atactaaatc 2520





acatgcatgg	acagatgctc	aggtccttgt	accaggggtca	gcagatcatc	attcagaacc	8700
tgtatcgatt	gtccctacat	ttgcagatgg	atctgccact	catgactccg	gaggcctatc	8760
gtcagcaggt	cgccaagcta	ggagaccagc	cctccactga	caggggggaa	gagccttctg	8820
gagccgctgc	tactgaggat	cctgccgttg	atgaagacct	catagctgac	ttggctggcg	8880
ctgattggag	cccatgggca	gacttgggca	gaggcagctg	atcttatgct	ttaatgtttt	8940
cttttatatt	atgtttgtgt	tctcttttat	gttttatgtt	atgtttttat	gtagtctgtt	9000
tggtaatata	aaagaggtag	tagtaaaaat	attagtattt	cagtatgtgt	tttctgagta	9060
ataagtgcac	gataactcaa	gcaatcataa	ttcttttagct	tgttcagaaa	ggttcaacac	9120
ttgagatgcc	actgacccct	ggagaaacac	tggttctgga	agcaaaagtc	aggtcaagaa	9180
atggaacatg	aatagcacag	agtggaaagg	ttagcttgat	ggaacaaggt	cataactggt	9240
acgccgaata	cttgtttaag	tcctgtgtgag	catggttgct	aaactctaga	gtcaactcat	9300
agactctcat	gagtttaaga	gtttacttca	gtcccgcgag	ttgactcgga	agcaaaactcg	9360
cttttgagca	aactcgtgga	ctcggagtga	actcatgtaa	actcgtaaga	gtctacgagt	9420
tgactctaga	gtttgacaac	catgcataag	tgttcaaaat	taaagcattt	aaataattaa	9480
aaaaagcaca	aatgtcttca	aagaagcatg	ttcaatcctc	taataggatc	atcttcatga	9540
atatcatcac	tttcatcatc	atctccatct	ccatcatcat	catcaaggtc	ttcctcagat	9600
tgtgcatcat	cattagggttc	cacaaagatt	aaattatcta	gatcaaaagc	ttaaaataga	9660
tatcaaatat	gctatattag	aaatagttaa	aacttaaaat	aatacacaag	caaattttta	9720
atatgagaaa	gttcagaaat	tatacctttt	cttggtgtta	ttaaagtttc	attttatctt	9780
ctcttttgca	ttttccatct	cctcacatat	gaaaagcata	attctattga	atttcagtaa	9840
caagtttgat	ccaactccaa	cattgtaagg	tcagttgttg	tgttttgtaa	tagactaata	9900
tgaagtatga	agtatgaact	atgaacttat	tgctatctgt	ttgcaaattg	gtgcattttg	9960
aatataattta	cttattatcc	attttttttt	ttttacgaag	tagactctca	cgagtctgcg	10020
tagactctcg	atatcgataa	ccttgccgat	gagagtgtga	acttaattgt	gagagaaaaa	10080
gcctattttt	aagttcctgg	ttttgcatca	ttcttagacg	gttagaatag	ttacttaagg	10140
tggtatgatg	caaggccatg	ttgtttgttt	tacctactta	gccaaaaagc	caaccttaaca	10200
tagttttacc	ccttgccacc	atgattgagc	caactgatta	ttttgaatta	accttgagcc	10260
aattaaacaa	aatcctgacc	ttttaggatt	ttaagagagt	aaaaatgggt	tataaagggtc	10320
ttaatttggtg	ggattttggg	aaataggtag	ccaagacaat	aagtacagca	cacaaagtag	10380
gacacctttt	acaaacagta	ggcccaattt	cgaaaaaaaa	atgaaaagaa	tttaataaag	10440
ggcagaaaca	aaagagcaag	agaggtgtca	aaagaaaagt	gttggtgggga	aatataaagg	10500
ctaagtataaa	aggcctaggc	agaattggaa	atttttgttc	tcttttaatc	ctaacttttg	10560
atttccaaga	aaaaccatga	ttttttgtaa	gccaggcccc	gatacaagcc	aatataagttc	10620
ttagtgatcc	accaaaggta	actagagata	actgtaaactg	agatgaaatg	caaaattttg	10680
aagtgttact	tgcagggtgt	tatcaaatgt	caaacactaa	actaggcact	tgtgagcaga	10740
gggaaacacc	agccttgtga	ggaaagtaag	gcaagccaaa	tttgattgag	ttccagatga	10800
ctaactgatt	caattcttct	gttgtaatgc	tttcatttta	agatgttgac	agatgcagaa	10860
aggaccagtg	aaagaaggag	gaactgagcc	attgatagtg	ttggaatatt	taagaacttg	10920
ccttgagaatt	tacttgtttt	tggttttctt	ggggacaagc	aaagtttcat	ttggggaatt	10980
ttgataactg	ctaaataatt	gtgaattaat	agtagaaaat	tagtcaaatt	ttggcttaaa	11040
attaattatt	tagcagttat	ttgtgattaa	aagttagaaa	agcaattaag	ttgaattttt	11100
ggccatagat	atgaaaactg	aaggtacaac	aagcaaaaagg	cagcagaaaag	tgaagaaaaa	11160
gaataaaatc	tgaagcagac	ccagcccaac	acgcgcctct	agcgcgcgtc	acgcgcctaag	11220
cttgcaaggc	agcacaggca	ctaagcgagg	cgtaagcac	gaagatgcag	gattcgttac	11280
gtgcgcctaag	cgcgaggcac	acgctaagcg	cgcatccaa	cagaagcaca	cgctaagcct	11340
gcagcatgcy	ctaagcgcg	ctacgaaggc	ccaaagccca	tttctacacc	tataaataga	11400
gatccaaaggc	aagggagaat	gtacaccttg	cctcagagca	cttctctcag	cattccaagc	11460
ttgagctctc	ccttttctct	ctatattctt	tgtttttatt	atccattctt	tctttcaccc	11520
cagttgtaaa	gccccctaat	ggccatgagt	ggttaatccc	ctagctacgg	cctggtaggc	11580
ctaaaaaggcc	aatgatgtat	ggtgtacttc	aagagttatc	aatgcaaaga	ggattcattc	11640



cagggttttat gttctaattc tttccttttt atcttgcat tttgtcttaa atttctgttg 11700  
 gggttttattc gctcgggaga ggggtatttcc taataagggt ttaagaagta atgcatgcat 11760  
 cagtttttagg gggtatacgc ttggtaaagg gtaacaccta atagaacaaa ttaagaaaag 11820  
 gatcgtcggg ctagcattgc taggcataga atgatggccc aatgcccattg catttagcaa 11880  
 catctagaat ttaaccttaa tgcattttta ttattgaatc ttcacaaaagg catttgggag 11940  
 ataggtagtt aaaatagggt tgcctatcgt aggcacaaag ggcaagtaaa attaatagat 12000  
 gtgggtagaa ctaattcaac tgcattggta atgaacatca taaattcatt catcgtaggc 12060  
 caattagggt tgcctcgggtc tggcattttc atcaattgtc ttcctaaatt atttgatcta 12120  
 atagcaacaa tttattctta tgcctattcc tgtttttact atttactttt acttacaat 12180  
 tgaagagtat tcaataaagt gcaataaaat ccctatggaa acgatactcg gacttccgag 12240  
 aattactact tagaacgatt tggtagactt gtcaaacacc tcaaca 12286

<210> 18

<211> 1802

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: plant  
retroelement sequence

<400> 18

Met Arg Gly Arg Thr Ala Ser Gly Asp Val Val Pro Ile Asn Leu Glu  
 1 5 10 15

Ile Glu Ala Thr Cys Arg Arg Asn Asn Ala Ala Arg Arg Arg Arg Glu  
 20 25 30

Gln Asp Ile Glu Gly Ser Ser Tyr Thr Ser Pro Pro Pro Ser Pro Asn  
 35 40 45

Tyr Ala Gln Met Asp Gly Glu Pro Ala Gln Arg Val Thr Leu Glu Asp  
 50 55 60

Phe Ser Asn Thr Thr Thr Pro Gln Phe Phe Thr Ser Ile Thr Arg Pro  
 65 70 75 80

Glu Val Gln Ala Asp Leu Leu Thr Gln Gly Asn Leu Phe His Gly Leu  
 85 90 95

Pro Asn Glu Asp Pro Tyr Ala His Leu Ala Ser Tyr Ile Glu Ile Cys  
 100 105 110

Ser Thr Val Lys Ile Ala Gly Val Pro Lys Asp Ala Ile Leu Leu Asn  
 115 120 125

Leu Phe Ser Phe Ser Leu Ala Gly Glu Ala Lys Arg Trp Leu His Ser  
 130 135 140

Phe Lys Gly Asn Ser Leu Arg Thr Trp Glu Glu Val Val Glu Lys Phe  
 145 150 155 160

Leu Lys Lys Tyr Phe Pro Glu Ser Lys Thr Val Glu Arg Lys Met Glu  
 165 170 175  
 Ile Ser Tyr Phe His Gln Phe Leu Asp Glu Ser Leu Ser Glu Ala Leu  
 180 185 190  
 Asp His Phe His Gly Leu Leu Arg Lys Thr Pro Thr His Arg Tyr Ser  
 195 200 205  
 Glu Pro Val Gln Leu Asn Ile Phe Ile Asp Asp Leu Gln Leu Leu Ile  
 210 215 220  
 Glu Thr Ala Thr Arg Gly Lys Ile Lys Leu Lys Thr Pro Glu Glu Ala  
 225 230 235 240  
 Met Glu Leu Val Glu Asn Met Ala Ala Ser Asp Gln Ala Ile Leu His  
 245 250 255  
 Asp His Thr Tyr Val Pro Thr Lys Arg Ser Leu Leu Glu Leu Ser Thr  
 260 265 270  
 Gln Asp Ala Thr Leu Val Gln Asn Lys Leu Leu Thr Arg Gln Ile Glu  
 275 280 285  
 Ala Leu Ile Glu Thr Leu Ser Lys Leu Pro Gln Gln Leu Gln Ala Ile  
 290 295 300  
 Ser Ser Ser His Ser Ser Val Leu Gln Val Glu Glu Cys Pro Thr Cys  
 305 310 315 320  
 Arg Gly Thr His Glu Pro Gly Gln Cys Ala Ser Gln Gln Asp Pro Ser  
 325 330 335  
 Arg Glu Val Asn Tyr Ile Gly Ile Leu Asn Arg Tyr Gly Phe Gln Gly  
 340 345 350  
 Tyr Asn Gln Gly Asn Pro Ser Gly Phe Asn Gln Gly Ala Thr Arg Phe  
 355 360 365  
 Asn His Glu Pro Pro Gly Phe Asn Gln Gly Arg Asn Phe Met Gln Gly  
 370 375 380  
 Ser Ser Trp Thr Asn Lys Gly Asn Gln Tyr Lys Glu Gln Arg Asn Gln  
 385 390 395 400  
 Pro Pro Tyr Gln Pro Pro Tyr Gln His Pro Ser Gln Gly Pro Asn Gln  
 405 410 415  
 Gln Glu Lys Pro Thr Lys Ile Glu Glu Leu Leu Leu Gln Phe Ile Lys

420

425

430

Glu Thr Arg Ser His Gln Lys Ser Thr Asp Ala Ala Ile Arg Asn Leu  
435 440 445

Glu Val Gln Met Gly Gln Leu Ala His Asp Lys Ala Glu Arg Pro Thr  
450 455 460

Arg Thr Phe Gly Ala Asn Met Glu Arg Arg Thr Pro Arg Lys Asp Lys  
465 470 475 480

Ala Val Leu Thr Arg Gly Gln Arg Arg Ala Gln Glu Glu Gly Lys Val  
485 490 495

Glu Gly Glu Asp Trp Pro Glu Glu Gly Arg Thr Glu Lys Thr Glu Glu  
500 505 510

Glu Glu Lys Val Ala Glu Glu Pro Lys Arg Thr Lys Ser Gln Arg Ala  
515 520 525

Arg Glu Ala Lys Lys Glu Glu Pro Leu Ala Leu Pro Gln Asp Leu Pro  
530 535 540

Tyr Pro Met Ala Pro Thr Lys Lys Asn Lys Glu Arg Tyr Phe Ala Arg  
545 550 555 560

Phe Leu Glu Ile Phe Lys Gly Leu Glu Ile Thr Met Pro Phe Gly Glu  
565 570 575

Ala Leu Gln Gln Met Pro Leu Tyr Ser Lys Phe Met Lys Asp Ile Leu  
580 585 590

Thr Lys Lys Gly Lys Tyr Ile Asp Asn Glu Asn Ile Val Val Gly Gly  
595 600 605

Asn Cys Ser Ala Ile Ile Gln Arg Ile Leu Pro Lys Lys Phe Lys Asp  
610 615 620

Pro Gly Ser Val Thr Ile Pro Cys Thr Ile Gly Lys Glu Ala Val Asn  
625 630 635 640

Lys Ala Leu Ile Asp Leu Gly Ala Ser Ile Asn Leu Met Pro Leu Ser  
645 650 655

Met Cys Lys Arg Ile Gly Asn Leu Lys Ile Asp Pro Thr Lys Met Thr  
660 665 670

Leu Gln Leu Ala Asp Arg Ser Ile Thr Arg Pro Tyr Gly Val Val Glu  
675 680 685

Asp Val Leu Val Lys Val Arg His Phe Thr Phe Pro Val Asp Phe Val			
690	695	700	
Ile Met Asp Ile Glu Glu Asp Thr Glu Ile Pro Leu Ile Leu Gly Arg			
705	710	715	720
Pro Phe Met Leu Thr Ala Asn Cys Val Val Asp Met Gly Lys Gly Asn			
	725	730	735
Leu Glu Leu Thr Ile Asp Asn Gln Lys Ile Thr Phe Asp Leu Ile Lys			
	740	745	750
Ala Met Lys Tyr Pro Gln Glu Gly Trp Lys Cys Phe Arg Ile Glu Glu			
	755	760	765
Ile Asp Glu Glu Asp Val Ser Phe Leu Glu Thr Pro Lys Thr Ser Leu			
	770	775	780
Glu Lys Ala Met Val Asn His Leu Asp Cys Leu Thr Ser Glu Glu Glu			
	785	790	795
Glu Asp Leu Lys Ala Cys Leu Glu Asn Leu Asp Gln Glu Asp Ser Ile			
	805	810	815
Pro Glu Gly Glu Ala Asn Phe Glu Glu Leu Glu Lys Glu Val Pro Ser			
	820	825	830
Glu Lys Pro Lys Ile Glu Leu Lys Ile Leu Pro Asp His Leu Lys Tyr			
	835	840	845
Val Phe Leu Glu Glu Asp Lys Pro Ile Val Ile Ser Asn Ala Leu Thr			
	850	855	860
Thr Glu Glu Glu Asn Arg Leu Val Asp Val Leu Lys Lys His Arg Glu			
	865	870	875
Ala Ile Gly Trp His Ile Ser Asp Leu Lys Glu Ile Ser Pro Ala Tyr			
	885	890	895
Cys Met His Arg Ile Met Met Glu Glu Asp Tyr Lys Pro Val Arg Gln			
	900	905	910
Pro Gln Arg Arg Leu Asn Pro Thr Met Lys Glu Glu Val Arg Lys Glu			
	915	920	925
Val Leu Lys Leu Leu Glu Ala Gly Leu Ile Tyr Pro Ile Ser Asp Ser			
	930	935	940
Ala Trp Val Ser Pro Val Gln Val Val Pro Lys Lys Gly Gly Met Thr			
	945	950	955
			960

Val	Val	Arg	Asp	Glu	Arg	Asn	Asp	Leu	Ile	Pro	Thr	Arg	Thr	Val	Thr	965	970	975	
Gly	Trp	Arg	Met	Cys	Ile	Asp	Tyr	Arg	Lys	Leu	Asn	Glu	Ala	Thr	Arg	980	985	990	
Lys	Asp	His	Phe	Pro	Leu	Pro	Phe	Met	Asp	Gln	Met	Leu	Glu	Arg	Leu	995	1000	1005	
Ala	Gly	Gln	Ala	Tyr	Tyr	Cys	Phe	Leu	Asp	Gly	Tyr	Ser	Gly	Tyr	Asn	1010	1015	1020	
Gln	Ile	Ala	Val	Asp	Pro	Arg	Asp	Gln	Glu	Lys	Thr	Ala	Phe	Thr	Cys	1025	1030	1035	1040
Pro	Phe	Gly	Val	Phe	Ala	Tyr	Arg	Arg	Met	Pro	Phe	Gly	Leu	Cys	Asn	1045	1050	1055	
Ala	Pro	Ala	Thr	Phe	Gln	Arg	Cys	Met	Leu	Ala	Ile	Phe	Ser	Asp	Met	1060	1065	1070	
Val	Glu	Lys	Ser	Ile	Glu	Val	Phe	Met	Asp	Asp	Phe	Ser	Val	Phe	Gly	1075	1080	1085	
Pro	Ser	Phe	Asp	Ser	Cys	Leu	Arg	Asn	Leu	Glu	Arg	Val	Leu	Gln	Arg	1090	1095	1100	
Cys	Glu	Glu	Thr	Asn	Leu	Val	Leu	Asn	Trp	Glu	Lys	Cys	His	Phe	Met	1105	1110	1115	1120
Val	Arg	Glu	Gly	Ile	Val	Leu	Gly	His	Lys	Ile	Ser	Ala	Arg	Gly	Ile	1125	1130	1135	
Glu	Val	Asp	Arg	Ala	Lys	Ile	Asp	Val	Ile	Glu	Lys	Leu	Pro	Pro	Pro	1140	1145	1150	
Leu	Asn	Val	Lys	Gly	Val	Arg	Ser	Phe	Leu	Gly	His	Ala	Gly	Phe	Tyr	1155	1160	1165	
Arg	Arg	Phe	Ile	Lys	Asp	Phe	Ser	Lys	Ile	Ala	Arg	Pro	Leu	Ser	Asn	1170	1175	1180	
Leu	Leu	Asn	Lys	Asp	Val	Ala	Phe	Val	Phe	Asp	Glu	Glu	Cys	Leu	Ala	1185	1190	1195	1200
Ala	Phe	Gln	Ser	Leu	Lys	Asn	Lys	Leu	Val	Thr	Ala	Pro	Val	Met	Ile	1205	1210	1215	
Ala	Pro	Asp	Trp	Asn	Lys	Asp	Phe	Glu	Leu	Met	Cys	Asp	Ala	Ser	Asp	1220	1225	1230	

Tyr Ala Val Gly Ala Val Leu Gly Gln Arg Lys Asp Lys Val Phe His  
 1235 1240 1245

Ala Ile Tyr Tyr Ala Ser Lys Val Leu Asn Glu Ala Gln Leu Asn Tyr  
 1250 1255 1260

Ala Thr Thr Glu Lys Glu Met Leu Ala Ile Val Phe Ala Leu Glu Lys  
 1265 1270 1275 1280

Phe Arg Ser Tyr Leu Ile Gly Ser Arg Val Ile Ile Tyr Thr Asp His  
 1285 1290 1295

Ala Ala Ile Lys His Leu Leu Ala Lys Thr Asp Ser Lys Pro Arg Leu  
 1300 1305 1310

Ile Arg Trp Val Leu Leu Leu Gln Glu Phe Asp Ile Ile Ile Lys Asp  
 1315 1320 1325

Lys Lys Gly Ser Glu Asn Val Val Ala Asn His Leu Ser Arg Leu Lys  
 1330 1335 1340

Asn Glu Glu Val Thr Lys Glu Glu Pro Glu Val Lys Gly Glu Phe Pro  
 1345 1350 1355 1360

Asp Glu Phe Leu Leu Gln Val Thr Glu Arg Pro Trp Phe Ala Asp Met  
 1365 1370 1375

Ala Asn Tyr Lys Ala Thr Gly Val Ile Pro Glu Glu Phe Asn Trp Ser  
 1380 1385 1390

Gln Arg Lys Lys Phe Leu His Asp Ala Arg Phe Tyr Val Trp Asp Asp  
 1395 1400 1405

Pro His Leu Phe Lys Ala Gly Ala Asp Asn Leu Leu Arg Arg Cys Val  
 1410 1415 1420

Thr Lys Glu Glu Ala Arg Ser Ile Leu Trp His Cys His Ser Ser Pro  
 1425 1430 1435 1440

Tyr Gly Gly His His Ser Gly Asp Arg Thr Ala Ala Lys Val Leu Gln  
 1445 1450 1455

Ser Gly Phe Phe Trp Pro Ser Ile Phe Lys Asp Ala His Glu Phe Val  
 1460 1465 1470

Arg Cys Cys Asp Lys Cys Gln Arg Thr Gly Gly Ile Ser Arg Arg Asn  
 1475 1480 1485

Glu Met Pro Leu Gln Asn Ile Met Glu Val Glu Ile Phe Asp Cys Trp  
 1490 1495 1500

Gly Ile Asp Phe Met Gly Pro Phe Pro Ser Ser Tyr Gly Asn Val Tyr  
 1505 1510 1515 1520

Ile Leu Val Ala Val Asp Tyr Val Ser Lys Trp Val Glu Ala Ile Ala  
 1525 1530 1535

Thr Pro Lys Asp Asp Ala Arg Val Val Ile Lys Phe Leu Lys Lys Asn  
 1540 1545 1550

Ile Phe Ser Arg Phe Gly Val Pro Arg Ala Leu Ile Ser Asp Arg Gly  
 1555 1560 1565

Thr His Phe Cys Asn Asn Gln Leu Lys Lys Val Leu Glu His Tyr Asn  
 1570 1575 1580

Val Arg His Lys Val Ala Thr Pro Tyr His Pro Gln Thr Asn Gly Gln  
 1585 1590 1595 1600

Ala Glu Ile Ser Asn Arg Glu Leu Lys Arg Ile Leu Glu Lys Thr Val  
 1605 1610 1615

Ala Ser Thr Arg Lys Asp Trp Ser Leu Lys Leu Asp Asp Ala Leu Trp  
 1620 1625 1630

Ala Tyr Arg Thr Ala Phe Lys Thr Pro Ile Gly Leu Ser Pro Phe Gln  
 1635 1640 1645

Leu Val Tyr Gly Lys Ala Cys His Leu Pro Val Glu Leu Glu Tyr Lys  
 1650 1655 1660

Ala Tyr Trp Ala Leu Lys Leu Leu Asn Phe Asp Asn Asn Ala Cys Gly  
 1665 1670 1675 1680

Glu Lys Arg Lys Leu Gln Leu Leu Glu Leu Glu Glu Met Arg Leu Asn  
 1685 1690 1695

Ala Tyr Glu Ser Ser Lys Ile Tyr Lys Glu Lys Met Lys Ala Tyr His  
 1700 1705 1710

Asp Lys Lys Leu Leu Arg Lys Glu Phe Gln Pro Gly Gln Gln Val Leu  
 1715 1720 1725

Leu Phe Asn Ser Arg Leu Arg Leu Phe Pro Gly Lys Leu Lys Ser Lys  
 1730 1735 1740

Trp Ser Gly Pro Phe Ile Ile Lys Glu Val Arg Pro Tyr Gly Ala Val  
 1745 1750 1755 1760

Glu Leu Val Asp Pro Arg Glu Glu Asp Phe Glu Lys Lys Trp Ile Val  
 1765 1770 1775

Asn Gly Gln Arg Leu Lys Pro Tyr Asn Gly Gly Gln Leu Glu Arg Leu  
 1780 1785 1790

Thr Thr Ile Ile Tyr Leu Asn Asp Pro Glx  
 1795 1800

<210> 19  
 <211> 9829  
 <212> DNA  
 <213> Glycine max

<400> 19  
 tgataactgc taaataattg tgaattaata gtagaaaatt agtcaaattt tggcttaaaa 60  
 ttaattattt agcagttatt tgtgattaaa agttagaaaa gcaattaagt tgaatttttg 120  
 gccatagata tgaaaactga aggtacaaca agcaaaaggc agcagaaagt gaagaaaaag 180  
 aataaaatct gaagcagacc cagccaaca cgcgcctta gcgcgcgtca cgcgctaagc 240  
 ttgcaaggca gcacaggcac taagcgaggc gttaagcacg aagatgcagg attcgttacg 300  
 tgcgctaagc gcgaggcaca cgctaagcgc gcgatccaac agaagcacac gctaagcctg 360  
 cagcatgcgc taagcgcgcc tacgaaggcc caaagcccat ttctacacct ataaatagag 420  
 atccaagcca agggagaatg tacaccttgc ctacagagcac ttctctcagc attccaagct 480  
 tgagctctcc cttttctctc tatattcttt gcttttatta tccattcttt ctttcacccc 540  
 agttgtaaag cccctcaatg gccatgagt gttaatcccc tagctacggc ctggtagggc 600  
 taaaaagcca atgatgtatg gtgtacttca agagttatca atgcaaagag gattcattcc 660  
 aggttttatg ttctaattct ttctttttta tcttgcatth atgtctttaa tttctgttgg 720  
 gttttattcg ctcgggagag ggtatttcct aataagggtt taagaagtaa tgcattgcac 780  
 agtttttaggg gttatacgct tggtaaaggg taacacctaa tagaacaat taagaaaagg 840  
 atcgctgggc tagcattgct aggcatagaa tgatggccca atgccatgc atttagcaac 900  
 atctagaatt taaccttaat gcattttaat tattgaatct tcacaaaggc atttgggaga 960  
 taggtagtta aaataggctt gtcacgtgta ggcattcaagg gcaagtaaaa ttaatagatg 1020  
 tgggtagaac taattcaact gcattggtaa tgaacatcat aaattcattc atcgtagggc 1080  
 aattaggttt gtccggtctt ggcatthtca tcaattgtct tcttaaatga tttgatctaa 1140  
 tagcaacaat ttattcttat gcctatttct gtttttacta tttactttta cttacaaaatt 1200  
 gaagagtatt caataaagt caataaaatc cctatggaaa cgatactcgg acttccgaga 1260  
 attactactt agaacgattt ggtacacttg tcaaacacct caacaagttt ttggcgccgt 1320  
 tgtcggggat tttgttctcg cacttaattg ccatactata ttagtthtga agcttaattc 1380  
 ttcttttctt ggctcattct tttattattc ttacttttac tttttcttct atcctttctt 1440  
 tcttctccca taaattgcac gggtagtgcc tttttgtttt tatacgaggt agaactgcat 1500  
 ctggagacgt tgttcctatt aacttagaaa ttgaagctac gtgtcggcgt aacaacgctg 1560  
 caagaagaag aaggagacaa gacatagaag gaagtagtta cactcacct cctccttctc 1620  
 caaattatgc tcagatggac ggggaaccgg cacaagagat cacactagag gacttctcta 1680  
 ataccaccac tcctcagttc tttacaagta tcacaaggcc ggaagtccaa gcagatctcc 1740  
 tactcaaggg aacctcttcc atggctcttc aaatgaagat ccatatgcgc atctagcctc 1800  
 atacatagag atatgcagca ccgttaaaat cgccggagtt ccaaaagatg cgatactcct 1860  
 taacctcttt tccttttccc tagcaggaga ggcaaaaaga tggttgcact cttttaagg 1920  
 caatagctta agaacatggg aagaagtagt ggaaaaatcc ttaaagaagt atttccaga 1980  
 gtcaaagacc gtcgaacgaa agatggagat ttcttatttc catcaatttc tggatgaatc 2040  
 ccttagcgaa gcactagacc atttccacgg attgctaaga aaaacaccaa cacacagata 2100  
 cagcgagcca gtacaactaa acatattcat cgatgacttg caaccttaat cgaaacagct 2160  
 actagagggg agatcaagct gaagactccc gaagaagcga tggagctcgt cgagaacatg 2220



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96  
97  
98  
99  
100  
101  
102  
103  
104  
105  
106  
107  
108  
109  
110  
111  
112  
113  
114  
115  
116  
117  
118  
119  
120  
121  
122  
123  
124  
125  
126  
127  
128  
129  
130  
131  
132  
133  
134  
135  
136  
137  
138  
139  
140  
141  
142  
143  
144  
145  
146  
147  
148  
149  
150  
151  
152  
153  
154  
155  
156  
157  
158  
159  
160  
161  
162  
163  
164  
165  
166  
167  
168  
169  
170  
171  
172  
173  
174  
175  
176  
177  
178  
179  
180  
181  
182  
183  
184  
185  
186  
187  
188  
189  
190  
191  
192  
193  
194  
195  
196  
197  
198  
199  
200  
201  
202  
203  
204  
205  
206  
207  
208  
209  
210  
211  
212  
213  
214  
215  
216  
217  
218  
219  
220  
221  
222  
223  
224  
225  
226  
227  
228  
229  
230  
231  
232  
233  
234  
235  
236  
237  
238  
239  
240  
241  
242  
243  
244  
245  
246  
247  
248  
249  
250  
251  
252  
253  
254  
255  
256  
257  
258  
259  
260  
261  
262  
263  
264  
265  
266  
267  
268  
269  
270  
271  
272  
273  
274  
275  
276  
277  
278  
279  
280  
281  
282  
283  
284  
285  
286  
287  
288  
289  
290  
291  
292  
293  
294  
295  
296  
297  
298  
299  
300  
301  
302  
303  
304  
305  
306  
307  
308  
309  
310  
311  
312  
313  
314  
315  
316  
317  
318  
319  
320  
321  
322  
323  
324  
325  
326  
327  
328  
329  
330  
331  
332  
333  
334  
335  
336  
337  
338  
339  
340  
341  
342  
343  
344  
345  
346  
347  
348  
349  
350  
351  
352  
353  
354  
355  
356  
357  
358  
359  
360  
361  
362  
363  
364  
365  
366  
367  
368  
369  
370  
371  
372  
373  
374  
375  
376  
377  
378  
379  
380  
381  
382  
383  
384  
385  
386  
387  
388  
389  
390  
391  
392  
393  
394  
395  
396  
397  
398  
399  
400  
401  
402  
403  
404  
405  
406  
407  
408  
409  
410  
411  
412  
413  
414  
415  
416  
417  
418  
419  
420  
421  
422  
423  
424  
425  
426  
427  
428  
429  
430  
431  
432  
433  
434  
435  
436  
437  
438  
439  
440  
441  
442  
443  
444  
445  
446  
447  
448  
449  
450  
451  
452  
453  
454  
455  
456  
457  
458  
459  
460  
461  
462  
463  
464  
465  
466  
467  
468  
469  
470  
471  
472  
473  
474  
475  
476  
477  
478  
479  
480  
481  
482  
483  
484  
485  
486  
487  
488  
489  
490  
491  
492  
493  
494  
495  
496  
497  
498  
499  
500  
501  
502  
503  
504  
505  
506  
507  
508  
509  
510  
511  
512  
513  
514  
515  
516  
517  
518  
519  
520  
521  
522  
523  
524  
525  
526  
527  
528  
529  
530  
531  
532  
533  
534  
535  
536  
537  
538  
539  
540  
541  
542  
543  
544  
545  
546  
547  
548  
549  
550  
551  
552  
553  
554  
555  
556  
557  
558  
559  
560  
561  
562  
563  
564  
565  
566  
567  
568  
569  
570  
571  
572  
573  
574  
575  
576  
577  
578  
579  
580  
581  
582  
583  
584  
585  
586  
587  
588  
589  
590  
591  
592  
593  
594  
595  
596  
597  
598  
599  
600  
601  
602  
603  
604  
605  
606  
607  
608  
609  
610  
611  
612  
613  
614  
615  
616  
617  
618  
619  
620  
621  
622  
623  
624  
625  
626  
627  
628  
629  
630  
631  
632  
633  
634  
635  
636  
637  
638  
639  
640  
641  
642  
643  
644  
645  
646  
647  
648  
649  
650  
651  
652  
653  
654  
655  
656  
657  
658  
659  
660  
661  
662  
663  
664  
665  
666  
667  
668  
669  
670  
671  
672  
673  
674  
675  
676  
677  
678  
679  
680  
681  
682  
683  
684  
685  
686  
687  
688  
689  
690  
691  
692  
693  
694  
695  
696  
697  
698  
699  
700  
701  
702  
703  
704  
705  
706  
707  
708  
709  
710  
711  
712  
713  
714  
715  
716  
717  
718  
719  
720  
721  
722  
723  
724  
725  
726  
727  
728  
729  
730  
731  
732  
733  
734  
735  
736  
737  
738  
739  
740  
741  
742  
743  
744  
745  
746  
747  
748  
749  
750  
751  
752  
753  
754  
755  
756  
757  
758  
759  
760  
761  
762  
763  
764  
765  
766  
767  
768  
769  
770  
771  
772  
773  
774  
775  
776  
777  
778  
779  
780  
781  
782  
783  
784  
785  
786  
787  
788  
789  
790  
791  
792  
793  
794  
795  
796  
797  
798  
799  
800  
801  
802  
803  
804  
805  
806  
807  
808  
809  
810  
811  
812  
813  
814  
815  
816  
817  
818  
819  
820  
821  
822  
823  
824  
825  
826  
827  
828  
829  
830  
831  
832  
833  
834  
835  
836  
837  
838  
839  
840  
841  
842  
843  
844  
845  
846  
847  
848  
849  
850  
851  
852  
853  
854  
855  
856  
857  
858  
859  
860  
861  
862  
863  
864  
865  
866  
867  
868  
869  
870  
871  
872  
873  
874  
875  
876  
877  
878  
879  
880  
881  
882  
883  
884  
885  
886  
887  
888  
889  
890  
891  
892  
893  
894  
895  
896  
897  
898  
899  
900  
901  
902  
903  
904  
905  
906  
907  
908  
909  
910  
911  
912  
913  
914  
915  
916  
917  
918  
919  
920  
921  
922  
923  
924  
925  
926  
927  
928  
929  
930  
931  
932  
933  
934  
935  
936  
937  
938  
939  
940  
941  
942  
943  
944  
945  
946  
947  
948  
949  
950  
951  
952  
953  
954  
955  
956  
957  
958  
959  
960  
961  
962  
963  
964  
965  
966  
967  
968  
969  
970  
971  
972  
973  
974  
975  
976  
977  
978  
979  
980  
981  
982  
983  
984  
985  
986  
987  
988  
989  
990  
991  
992  
993  
994  
995  
996  
997  
998  
999  
1000

ggggctagcg atcaagcaat ccttcatgat cacacttatg ttcccacaaa aagaagcctc 2280  
 ttggagctta gcacgcagga cgcaactttg gtacaaaaca agctgttgac gaggcagata 2340  
 gaagccctca tcgaaaccct cagcaagctg cctcaacaat tacaagcgat aagttcttcc 2400  
 cactcttctg ttttgcaggt agaagaatgc cccacatgca gagggacaca tgagcctgga 2460  
 caatgtgcaa gccacaaga cccctctcgt gaagtaaatt atataggcat actaaatcgt 2520  
 tacggatttc agggctacaa ccagggaat ccatctggat tcaatcaagg ggcaacaaga 2580  
 ttaatcacg agccaccggg gttaatcaa ggaagaaact tcatgcaagg ctcaagttgg 2640  
 acgaataaag gaaatcaata taaggagcaa aggaaccaac caccatacca gccaccatac 2700  
 cagcacccta gccaaaggtc gaatcagcaa gaaaagccca ccaaataga ggaactgctg 2760  
 ctgcaattca tcaaggagac aagatcacat caaagagca cggatgcagc cattcggaat 2820  
 ctagaagttc aaatgggcca actggcgcgt gacaaagccg aacggccac tagaactttc 2880  
 ggtgctaaca tggagaagaa cccaaggaa gaatgaaaag cagtactgac ttgagggcag 2940  
 agaagagcgc aggaggagg taaggttgaa ggagaagact ggccagaaga aggaaggaca 3000  
 gagaagacag aagaagaaga gaaggtggca tcaccaccta agaccaagag ccagagagca 3060  
 agggaagcca agaaggaaga accactagcc ctccacagg atctccata tcttatggca 3120  
 cccaccaaga agaacaagga gcgttacttt agacgtttct tggaaatatt caaagggtta 3180  
 gaaatcacta tgccattcgg ggaagcctta cagcagatgc ccctctactc caaatattatg 3240  
 aaagacatcc tcaccaagaa ggggaagtat attgacaacg agaatattgt ggtaggaggc 3300  
 aattgcagtg cgataatata aaggaagcta cccaagaagt ttaaagaccg cggaagtgtt 3360  
 accatccgtg gcaccattgg gaaggaagcc gtaacaagg ccctcattga tctaagagca 3420  
 agtatcaatc tgatgccctt gtcaatgtgc aaaagaattg ggaatttgaa gatagatccc 3480  
 accaagatga cgcttcaact ggcagaccgc tcaatcaca ggccatatgg ggtggtagaa 3540  
 gatgtcctgg tcaaggtacg ccacttcaact tttcgggtgg acttttttat catggatatc 3600  
 gaagaagaca ctgagattcc ccttatctta ggcagaccct tcatgctgac tgccaactgt 3660  
 gtgggtggata tggggaatgg gaacttagag ttgactattg ataatcagaa gatcaccttt 3720  
 gaccttatca aggcaatgaa gtaccacag gagggttgga agtgcttcag aatagaggag 3780  
 attgatgagg aagatgtcag tttctcag acaccataga ctctcgtaga aaaagcaatg 3840  
 gtaaatgctt tagactgtct aaccagtga gaggaagaag atctgaaggc ttgcttggaa 3900  
 aacttgatc aagaagacag tattctcag ggagaagcca atttcgagac gctagagaag 3960  
 gaagttccgt ctgagaagaa gaagatagag ttgaagatat tgcctaataca tttgaagtat 4020  
 gtgttcttgg aggaagataa gcctatagtg atcagtaatg cactcacaac agaggaagaa 4080  
 aataggttgg tagacgtcct aaagaaacac aggggaagcaa ttggatggca catatcggat 4140  
 ctcaggaatt agccctgcct actgcatgca catgataatg atggaagagg actacaagcc 4200  
 agtccgacaa ccctagaggc ggctgaatcc aacaatgaag gaagaggtaa gaaaggagg 4260  
 gctcaagctt ttggaggctg ggttcataata cccatctct gatagcgctt gggtaagtcc 4320  
 agtacagggt gttcctaaga aaggcggaat gacagtggta cgaaatgaga ggaatgactt 4380  
 gataccaaca cgaactgcca ctggttgggt gatgtgtatc gactatcgca agttgaatga 4440  
 agccacacag aaggaccatt tccccttacc tttcatggat tagatgctgg aaaggcttgc 4500  
 agggcaggca tactactgct tttggatgga tattcaggat acaaccagat cgcggtagac 4560  
 ccagagatc aggagaagac ggctttaca tgccccttcg gcgtctttgc ttacagaagg 4620  
 atgtcattcg ggttatgtaa cgactagcc atatttcaga ggtgcatgct agccattttt 4680  
 tcagacatgg tggagaagag catcgaggta tttatggacg acttctggat ttttggacct 4740  
 tcatttgaca actatttgag gaacctagag atggtactac agaggtgcgt atagactaac 4800  
 ttggtactaa attgggaaaa gtgtcatttc atggttcgag agggcatagt cctgagccac 4860  
 aagatctcag ccagagggtat tgaggttgat cagacaaaga tagacgtcat tgagaagttg 4920  
 ccgccaccaa tgaatgttaa aggtgcaga agtttcttag ggcatgcagg tttctacagg 4980  
 aggtccatca aggaacttct gaagattgcc aggccttaa gcaatctggt gaataaggat 5040  
 gtggctttta agtttgatga agaatttca gcagcatttt tagacactaa agaataagct 5100  
 caccactgca ccagtaatga ttgcaccaga ctggaataaa gattttgaac taatgtgtga 5160  
 tgccagtgat tatgcagtag gagcagtttt gggacagagg cacgacaagg tatttcacgc 5220

catctattat	gctagtaagg	tccttaataa	agcataacta	aattatgcga	ccacagaaaa	5280
gcagatgcta	gccattgtct	tttccttgga	gaagttcagg	togtacttga	tagggctcag	5340
ggtcaccatt	ttcacaaatc	atgctgccat	caagcacttg	ctcgccaaaa	cagactcaaa	5400
gctgagggtg	attagatggg	tcctgctgat	acaagaattt	gacatcatca	tcaaggacaa	5460
taaaggatcc	aagaatgtgg	tagccaatca	tttatcctga	ttaaagaatg	aagaagtcac	5520
caaggaagaa	ccagaggtaa	aaggagaatt	tcctgatgaa	tttcttttgt	aggttaccac	5580
cagaccttgg	tttgagaga	tggtacta	caaagccaca	ggagtcattc	cagaggagtt	5640
taattggagt	cagaggaaga	aattcttgca	tgatgcacgc	ttctatgtgt	gggataatcc	5700
tcatttgttt	agggcaggag	ctgataatct	attaaggaga	tgcgtcacaa	aggaggaagc	5760
acagagcatt	ctttggcact	gccacagttc	accctatggc	ggacaccaca	gtggggacag	5820
aacagcagca	aaagtgtctac	aatcagggtt	tttctggcct	totattttta	aagatgctta	5880
cgagtttgtg	cgttgttgtg	ataaatgcc	gagaacaggg	gggatattct	gaaggatgga	5940
gatgcctttg	cagaatatca	tggaagtaga	gatctttgac	tgttggggca	tagacttcat	6000
ggggcctctt	ccttcttcat	acgagaatgt	ttacatcctg	gtagctgtgg	attacgtctc	6060
caaatgggtg	gaggccatag	ccattccaaa	agacgatgcc	agggtagtga	taaaatttct	6120
gaagaagaac	atcttttccc	attttggagt	cccatgagcc	ttgattagt	atggggaacg	6180
cacttctgca	ataatcagtt	gaagaaagtc	ctggagcact	ataatgtaag	acataagggtg	6240
gccacacctt	atcacccctca	gacaaatggc	caagtagaaa	tttctaacaa	agagctcaag	6300
cgaatcctgg	agaagacagt	tgcatcatca	agaaagaatt	gggccttgaa	gctcgatgat	6360
actctttggg	cctacagggc	agcattccaa	actcccatcg	gcttatcacc	gtttcagcta	6420
gtgtatggga	aggcatgtca	tttaccagt	gagctggagc	acaaagcata	ttaggctctc	6480
gagttactca	actttgataa	caacgcagtc	ggagaaaaga	ggaagctaca	gttgctggaa	6540
ttagaagaga	tgagactgaa	tgctacgag	tcattccaaa	tttacaacca	aaagatgaag	6600
gcataatcat	acaagaagct	acagagggaa	gaattccaac	catggcagca	ggtattactc	6660
tttaaatcaa	ggctaaggct	attcccaggt	aagctgaagt	ccaagtgggt	agggccgttc	6720
ataatcaatg	aagtcagacc	tcacggagca	gtagaattgg	gggaccctag	agaagagaac	6780
tttgagaaga	aatggatcgt	caatggacaa	cgcttaaagc	tttataacga	aggacaacta	6840
gagcgattga	cgaccatcat	ctacttgaat	gacccttgag	gaggccctagt	gtctagctaa	6900
agacaataaa	ctaagcgctg	gttggggaggc	aaccacaacat	attttgtaaa	aatgtagtca	6960
tttttctgta	ttccttcaaa	aaaaaaggga	aaagcccaat	aggtgcaaat	agaaaacagc	7020
aggtgcagaa	agtaaagacc	cagtaggtga	agtcagcaat	aggaggggtg	ccaatagaag	7080
aagcgaagt	ggctgcacga	agccacgcgc	atctaggcgc	taagcgccca	ggtatatatt	7140
caatttttaa	attttataaa	ttctgaggga	aaccaaggga	cgcttccctt	ggtatgctta	7200
gcgaccagat	gcgcgctaag	cgcgcgcaacc	ataaattgct	ggacagtttt	caaaaactgtc	7260
ccacccctca	gctgcccttt	tgtattttta	atttcaacca	cctcattttt	ttttctcttc	7320
tgcgactcc	cactccctat	accctttttc	tctacatttc	ctctaaactt	actcgctctc	7380
ctgtgcctct	tcacgtagtt	tttacgaaaa	taggtgagat	tgggaatctg	gactgttgct	7440
gtaatacttt	gcaggtagca	tcacgctaag	ccctacacaa	aggcttagcg	agaaaaagaa	7500
acatagaaa	gaagaaagaa	gcattgcgcta	agcctgcgcc	agacaggaca	agaaaacaca	7560
gcattgcgtt	agccggcacc	tcgtgctaag	cgcgctcatg	agactcagtg	aacgcgctaa	7620
gcattggggt	gggccttagg	gccatcagc	cctcgtgcct	tactttctgc	accctctttt	7680
tcactaacta	cactcccttc	tgaatttctt	tttgacccct	cctctattac	taaccacaat	7740
ctattttttc	gtctttgttt	ctttgttttt	tcagatggcc	tcccgcaaac	gccgagctgt	7800
gccacacct	ggggaagcat	caagctggga	ctcttccgc	ttcacctcgg	agatcatttg	7860
gcattagata	caggataaca	ttcagctccg	gaacattctt	ctggagagga	atgtcgagct	7920
cacaccaggg	atgtttgatg	agttcctcca	ggagctccag	aggtgcagat	gggaccaggt	7980
gttaaccgga	cttccagaga	agaggattga	tgtcgtctct	gtgaaggagt	tttactccaa	8040
cttatatgat	ccagaggacc	atagtcacaa	gttttgtagg	gttcaaggac	aggtcatgtg	8100
gtttgatgca	gagacgatta	acgacttctt	tgacacccca	gtcatcctgg	cagatgtaga	8160
ggagtaccca	gcctactctc	agtacctccg	cactcctccc	gatcatgatg	ccatcctctc	8220
cactttgtgt	actccagggg	gacggtttgt	tctgaatgtt	gatgggtgcc	cctagaagtt	8280

gctgcggaag	gatctgacga	cactcgctca	gacatagagt	gtcctttctt	attttaacct	8340
tgttcttact	tctcacactt	ctgatattaa	tgttgacagg	gcccgtctca	tatatggctt	8400
ggtgatgaag	atggacctgg	acgtggacag	ttttatttcc	cagcaaatca	gtcagatcgc	8460
ccaatccaac	acatccaggc	tcgggttccc	agcgttgatc	acggcactgt	gtgacattca	8520
gggggttggt	tctaaccacc	tgatttttga	gttactcaat	cctatgatta	accttgcgta	8580
cattacacta	ctaaaaaaaa	gctattttac	gacgcgcgtt	ccacatcggt	tctgccaaaa	8640
atgtcgtaat	aggagtagcg	gtggcaattc	cgtaaataag	tgagcatttt	atgtgccatg	8700
tgcatggcgc	gtgacacatt	caacgacggt	ggccatgggt	gcccgtcttt	gtagggtggc	8760
cgctggtaac	ttaagacggg	gcacttaaaa	acatcgctgt	tgaaattttg	aatttcgaag	8820
acgttgctct	taagccaccg	tcgttaaggt	tgatgtatat	aatgttgtaa	tttgcgctat	8880
ttcgtgaaca	ctcgctcgag	ctcccgcctc	cctgtgtgtc	tgaaattttc	gtgtactgtg	8940
acctcgccat	gacttggtgg	gtttgcccac	accccgtca	cctcgtcggg	catctcgctc	9000
tgtggtggca	ccgccgaagc	cagtgaagtac	ccctttttgg	aggggtcgta	acacggctgt	9060
gttttgaagg	taaggttggt	cgaagatttg	atgctccata	gttggttactt	gctctgagtt	9120
tttcttttag	tgatgtatct	tttacccttc	tttcagtgtc	tcttccctca	gaatttgatt	9180
gccggtatta	gaaccccaact	attcatcagg	tccaaacaag	cttaaatacat	ggtaaatgta	9240
cttcttgaca	aatccaacat	ttgcaagggt	gtttgacata	tgagaaatag	ctttaacctt	9300
atgttcttaa	atttattatg	aagctctcta	gcgattacga	aaatctctca	atatcttctc	9360
tctctgtctc	acatgcatca	ctgtaagata	ggtgtcaaaa	agaaaggatt	gaagttaa	9420
ttaaacctaa	tgttttgaaa	tgaaggaaaa	aaagaaagag	attaatgacg	ctagggaact	9480
tgaatgaaga	aagagaaagg	aacataatta	gtcctttgaa	ctgattgggg	tggggagtgt	9540
ggcacgaaac	ataatttcta	gttctatgga	tttattcgtg	acactgtggg	aggaccaagc	9600
aaactctgcc	cccagagtgc	gcagtgtctt	gcagtctgag	aggttctttt	gttgggctag	9660
tttgaggaat	tcttcattgc	agggttgagc	acggtggcca	atggccaagg	agagaaaaga	9720
cagtactgtc	aaaatggtta	atggtaagat	gagtgaagat	gacatgtttt	tttgttgtct	9780
ctttgtgtgt	ttccttttgg	tgggaaaatg	tgatgcatag	agagatcga		9829

<210> 20

<211> 12571

<212> DNA

<213> Glycine max

<400> 20

gatcttaaat	tcttaaacct	tgataacagt	gcatacggag	agaagagaaa	gttgcagtta	60
ctggaactcg	aagaaatgag	gttgaacgct	tacgaatcat	ctaggattta	caagcagaag	120
gtaaaggcgt	atcatgataa	gaaattacaa	aagaaagaat	tccagccagg	gcagcaagta	180
ctactcttca	actccagggt	gagattattc	acaggaaaagc	tgaagtcaaa	gtggtcagga	240
tcggttcatta	ttaaggaaat	cagacctcac	ggagcggtag	aattgggtgga	ccctcgagaa	300
gaaaattatg	agaagaaatg	gatcgtaac	ggacaacgct	taaaaattta	caatggagga	360
caactagaga	agttgacgac	catcatgcat	ttaaaagatt	cttgaaagaa	gccctatgtc	420
tagctaaaga	cattaaacta	agcgttggtt	gggaggcaac	ccaacatact	tatgtaagg	480
atttataagt	atttatattc	tgtctttatt	atattttgca	gttggttattt	cagggttaaaa	540
gaaaaaacag	gggccctccg	gactcgcacc	agagtatcaa	cgtccatata	tgaggcacc	600
cctacttctc	agccttccgc	tccatcacct	actgatcttc	atgctcagat	gttgcggtct	660
attcacacag	gacaggagac	ccttatggag	aaatgacaca	agctgtcctt	tcatctacat	720
atggatccac	cactgatcac	tccatagggt	tatcgtcagc	gggtcgtctg	gccatgagac	780
cagctctcca	ctgacagggg	ggaagagccc	tctggagatg	ctgcagttga	tgaagacctc	840
atagcagact	tggctagtgc	tgattggggg	ccatgggcag	atttgggagg	cggcacagga	900
cactgggttt	atttttcttg	atgtttttgt	ttatgtttta	tgtttatgtt	ttatgtcttt	960
atgttttatt	tggtttctag	ttattatggg	cttaattgta	gttttatgtt	caaaatgaaa	1020
agcagtggta	ataatattag	atttgagcat	atgcgtgaat	aaataaattg	catgataact	1080

tgagaaatga	caatstttgag	tttgtttctaa	aaggtccaac	actggaaagg	ctactagtca	1140
ttggaaagca	ctggtcttgg	aagcaaaagt	caaatacaagg	aatgaaacat	gattcacgga	1200
aaaggaaagg	ttagcttgat	ggaatgaaga	cacatctggg	acgccaatac	tgaattaatc	1260
ccggtgagag	tgtgacctta	attgtgagag	aaaacgcctg	tttttaagct	cttagttttg	1320
catcattctt	ggactgttaa	aattagttac	ttaaggtgga	tatgatcaag	gccatgtttg	1380
ttttatsttta	cccactcagc	caaaaagcca	acccaacata	atstttatccc	ttgcacccat	1440
attgagccaa	aaagaattat	aatgattttat	ttgagtaaac	ccctgagcca	agaaattgat	1500
attcctaacc	ttgtgtagga	ttctaagaga	gcagtagggg	tccaaatgct	tataaggcct	1560
tattttgggg	gattttgaac	aaatgggtaa	agtagccaag	gtaataacac	acattagaac	1620
acctctaaat	aattgtgagc	ccattactat	tattattatt	attattatta	ttattattat	1680
tattattatt	attattatta	ttattattat	tattggttat	aaaaaaaaga	agaaaaaaag	1740
agaaagaata	agaagagaaa	gggcaaagaa	aaaaaatgaa	aaagagaggt	ttcagtggaa	1800
agtgtgaag	gcaaaaaagg	ctaagtggga	aataggtctt	ggcaagacct	taaatstttt	1860
gaatgtatgc	tctcttataa	ccttatattt	tgaattttcca	agaaaaacca	tgattctttg	1920
ttagccaggc	cccattacaa	ggcatgaaag	tccttagtga	cccaccgaag	gtaattaagg	1980
ctaaccttaa	ccaagatgaa	gtacaaaact	cttgagtttt	atsttacaggt	tgttaaaatt	2040
gcaaacactt	gaccaggcac	ttgtgagtag	agagaaacac	cagttttgta	aggaagtaag	2100
gcaagccgga	cctgttggaa	ttccatataa	ttgacttggt	tctgtctctg	tgtttatgct	2160
tttattttcaa	gatcatgaca	gatgcaaaga	gaccagccaa	aggatcaagg	aattgaagtc	2220
atggagagtg	ttggaatgat	tggaacttgc	ttgagaaaat	ttttgcttaa	gaatggaata	2280
atstttattct	ttttatttgc	ttggggacaa	gcaaagttta	atstggggga	ttttgataac	2340
tgctaaataa	tagtgaatta	atagtggaaa	attgggtctga	aattaactta	gaattaatta	2400
tttagtagtt	atsttatgctt	taatttggaa	agattttaatt	aattttgaat	tctgattgca	2460
gatgtgaaaa	agggaggtac	aacaagcaaa	aaggagcaaa	aataaagaaa	agaagaaga	2520
aaatcagacg	aagacccaag	cccaaatttt	cacctataaa	taagaaggtc	agcctagcaa	2580
aacacacaca	ctttcagaga	gctcagtttt	cagacttctg	gcactcagtt	ctctccttct	2640
ccttcccttt	ttcttatatt	cttattacct	ttctttcacc	cccttctcat	tgtaaagccc	2700
tcttgactat	gagtggctaa	accctagctt	agggcctggc	aggcctaaaa	agccaatgat	2760
gtatggagca	tttcaagagt	tatcaataaa	gagaggattt	ccttccagggt	tctttatttta	2820
ccgttctttc	ttattttatcc	tgtatttcgg	accttatttt	ctgttagggg	ttagtccact	2880
cggtgagagg	taaagccctaa	ttaggggtaa	ggaatgaata	cttgaatcta	ttttaagggg	2940
tagtccattc	gggagagggt	aaagctttaa	agaacaataa	aaggaagaaa	ttatcggggt	3000
atcattagag	ggttttcctt	ccaggttctt	ttatctgctt	ttctttctta	ttctgcactct	3060
cagtctttat	tttctgttag	tcttttagtcc	actcgggaga	gggtaaaagg	taattaaggg	3120
taaggaatga	ttgcgtgaat	ctgtttttaag	ggttagttca	ctcaggagag	ggtaacgctt	3180
aatagaacaa	taaaagaaaa	aaatcacagg	gtagcattg	accgatgcc	catactttag	3240
caaacatata	gaatttaatc	ttaatgcact	ttagttattg	agtctttgca	aagggcattt	3300
ggaagatagg	taattaagggt	aggcttgtca	tcatgaggca	tcaggggcaa	gtagatggat	3360
agatgtgggg	cagaatcagt	tcactgggtat	tgataacaga	caaactttga	atccatatat	3420
ctaggctgat	tagacttttt	agggttttagc	aattttatta	tatagatttt	attccctatt	3480
ttattgtttg	aagtttctta	ttctattggt	gggttttctt	agaagtagct	attccttatt	3540
ttactgttgg	gttttcttag	aaatagttat	tccttattgt	tgggtttctt	agaagtagtt	3600
attccttatt	ttactgttgg	gttttatttag	gagtacttat	ccctgtttta	ggagtaggta	3660
tttaggctta	ttagatttag	taatatttta	tagactttat	tctttatttta	ttgcttgagt	3720
ttcctttaat	ttagaagtag	ctgcttagat	ttaaattact	ttatctttat	cctttaatct	3780
tatctttaaa	tcttttatct	tttcccttato	ttatctttta	tctttcttta	tcttttattt	3840
caaatttctt	atcccttgct	agattttaaat	tgcattttaat	tttatacact	aaattttaca	3900
tttgcaaact	aaaaagtact	tcacataagt	gcaacaaaat	ccctatggta	cgatactcga	3960
cttaccgaga	gattattact	acgagcgatt	tggtacactt	gccaaagagc	taacaaagat	4020
attgcctgat	catctaaagt	atgtgttctt	ggaggaagat	aaacctatag	taatcagtaa	4080
cgcactcaca	acaaaggagg	aaaatagggt	ggttgatgtc	ctcaagaaat	acaggaagc	4140

aattggatgg catatatcgg atctcaagga aattagccct gcttactaca tgcacagaat 4200

aatgatggaa gagaactaca agccagtcgg acaaccccag aggcggctga atccaacaat 4260  
gaaggaagag gtaagaaagg aggtactcaa gctcttggag gctgggctca tatacccctt 4320  
ctctaacagt gcttgggtaa gccagtaca ggtggttccc aagaaagggtg aaatgacagt 4380  
ggtacgaaat gagaagaatg acttgatacc cagacgaact atcactgggtt ggcgaatgtg 4440  
tatcaactat cgcaagctga atgaagccac acgaaaggac catttcccct tacttttcat 4500  
ggatcagatg ctagagagac ttgtagggca ggcatactac tatttcttgg atggatactc 4560  
gggatataat cagatcgcgg tggaccccag agatcaagag aaggcggcct ttacatgccc 4620  
ttttggcggtt tttgcttata gaaggatgcc attcggttga tgtaatgcac cagccacatt 4680  
tcagaggttc atgctggcca ttttttcaga catggtgtag aaaagcattg aggtatttat 4740  
ggacgacttc tgggtttttg gaccctcatt taacagtttg aggaacctag agatggtact 4800  
ttagagttga gtagagacta acttgggtact gaactgggag aagtgtcact tcatggttca 4860  
agagggcacg gtcttagggc acaagatctc agcaagaggg attgaggtcg atcgggcaaa 4920  
gatagacgtc atcgagaagc tgccaccacc actgaatggt aaaggggtta gaagtttctt 4980  
agggcatgca ggtttctaca agaggtttat caaggacttc tcaaagattg ccaggcccct 5040  
aagtaacctg ttgaataaag acatggtttt caagtttgat gaagaatgtt caacagcatt 5100  
ccaatcattg aagaataagc ttaccactgc acctgtaatg attgcacccg actggaataa 5160  
agattttgaa ctaatgtgtg atgccaatga ttatgcagta ggagcagttc tgggatagag 5220  
gcacgacaag gtatttcacg ccatctatta tgctagcaag gtcctgaatg aagcatagtt 5280  
gaattatgca accatagaaa aggagatgct agccattgtc tttgccttgg agaaattcaa 5340  
gtcatacttg atagggttga gggtcaccat ttccacagat catgctgcca tcaagcacct 5400  
gcttgccata acagactcaa aaccgaggtt gattagatgg gtcctactgt tacaagaatt 5460  
tgacatcatc atcaaggaca agaaaggatc cgagaatgtg gtagccaatc atctatctcg 5520  
attgaagaat gaagaagtca ccaaggaaga accagaggta aaaggtgaat ttctgatga 5580  
gtttcttttg caggttaccg ctagatcttg gtttgcagac atggccaatt acaaagccac 5640  
gggagtcatt ccagaggagc ttaattggag tcaaaggaag aaattcttgc acaatgcacg 5700  
cttctatgtg tgggatgac ctcactgtt caaggcagga gcagataatt tactaaggag 5760  
atgcgtcaca aaggaggaag cacggagcat tctttggcac tgccacagtt caccctatgg 5820  
cggtcaccac agtggggaca gaacagcagc aaaagtgtc caatcaggtt ttttctggcc 5880  
ctctattttt aaagatgctc acgagtttgt gcgttggtgt gataaatgcc aaagaacagg 5940  
ggggatatct cgaagaaatg agatgccttt gcaaaatata atggaagtag agatctttga 6000  
ctgttggggc atagacttca tcgggcccct gccttcgtta tatggaaatg tctacatctt 6060  
ggtagtgtg gattacgtct ccaaatgggt ggaagtcata gctacgcca aggatgatgc 6120  
caaggtagta atcaaatttc tgaagaagaa cattttttcc cgttttggag tcccacgagc 6180  
cttgattagt gataggggaa cgcacttctg caacaatcag ttgaagaaag tcttggagca 6240  
ctataatgtc cgacataagg tggccacacc ttatcatcct cagacaaatg gccaaagcaga 6300  
aatctctaac agggagctca aggcgaatct tggaaaagac aattgcatca tcaagaaagg 6360  
attgggcctt gaagctcgat gatactctct tggcctatag ggcagcggtc aagactctca 6420  
tcggcttata gccatttcag ctagtgtatg ggaaggcatg ccatttacca gtggagctag 6480  
agcaciaaagc atattgggct ctcaagttgc tcaacttcga caacaacgca tgcggggaaa 6540  
agaggaagct acagatgttg gaattagaag agatgagact gaatgcctac gactcatcca 6600  
gaatttacaa gcaaaagatg aaggcatatc atgataaaaa gctacagagg aaagaattcc 6660  
atccagggaa gcagggtatta ctctttaatc cgaggctaag gctattccca ggtaagctga 6720  
agtccaagtg gtcaaggcca ttatcataaa aagaagtcag acctcatgga gcagtagaat 6780  
tggtggaccc ttgagaagag aactttaaga agaaatggat cgtcaatcga cagcgcttga 6840  
agccctacaa cggaggacaa ctcgagcgat tgacgaccat catctactta aatgatcctt 6900  
gagaaggcct actgtctagc taaagacaat aaactaagca ctggttggga ggcaacccaa 6960  
catatttttg taaaaatgta gttattttta ttttatgtaa aaaaaaacia gagggcccaa 7020  
taggtgcaaa tagcaaacag gaggtgcaaa aagcaaaggc ccaacagggt aagacaacia 7080  
taggaagggt gccaatagca aaactgaagt gggctgcatg aagccgcgcg ctaagcgcct 7140

aggtatgttt	ttaaaatctg	atgggcaacc	aagggacgct	ttccttggtg	cgcttagcgg	7200
ccacatgcgc	gctaagcgcg	taagtcataa	attactggac	agttttcgaa	actgcccac	7260
ccctcagctg	cctcctccgc	gttattaaat	tacaaccatt	tcatttcatt	atccttcttt	7320
tctttcgcaa	atctaccctt	ctttgcacct	ctgctactgt	aaccctgaa	ttcttggtct	7380
tttcacacaa	aacaatcact	aacgaaggta	agaattgct	ttgtatggat	gttggttatga	7440
atgcacaggt	aacagcacgc	taagccctgc	tcgacgctta	gccaatgaag	acggattgaa	7500
ggccataacg	acgagctcgt	taagcgtgac	gaagcacgct	aagcaggcgc	ctgacaggac	7560
gagaaagcaa	agcgcgcgct	tagccggcac	ttccgcgcta	agcgcgctca	tgaacatcac	7620
tgaacgcgct	aaacgtgtgc	cagaggcgtc	aaacgcgtgc	cagaggcgtc	aaacgcgtgc	7680
attagtaca	gcaggatggg	gctaagcgcg	gggttggggc	tcaggggcca	tcaaccctcg	7740
caccttactt	gttgaccccc	tatttctact	attcccactc	ccttctaatt	tctttttgca	7800
cccccttct	ttactgactg	cacctctatt	ttgattactt	tttgaccccc	ccctgattgc	7860
taacttcaga	ctatctttct	tgttttttgt	ttttttgggt	ttttggtcag	atggcctcct	7920
gtaaacaccg	agctgtgccc	acaccggggg	aagcgtccaa	ctgggactct	tcacgtttca	7980
ctttcgagat	tgcttggcac	agataccagg	atagcattca	gctccggaac	atccttccag	8040
agaggaaatgt	agagcttgga	ccagggatgt	ttgatgagtt	cctgcaggaa	ctccagaggc	8100
tcagatggga	ccaggttctg	acccgacttc	cagagaagtg	gattgatgtt	gctctgggtga	8160
aggagtttta	ctccaacctt	tatgatccag	aggaccacag	tccgaagttt	tggagtgttc	8220
gaggacaggt	tgtgagattt	gatgctgaga	cgattaatga	tttcctcgac	accccggtca	8280
tcttggcaga	gggagaggat	tatccagcct	actctcagta	cctcagcact	cctccagacc	8340
atgatgccat	cctttccgct	ctgtgtactc	cagggggacg	atttgttctg	aatgttgata	8400
gtgccccctg	gaagctgctg	cggaaggatc	tgatgacgct	cgcgagaca	tggagtgtgc	8460
tctcttattt	taaccttgca	ctgacttttc	acaattctga	tattaatgtt	gacagggccc	8520
gactcaatta	tggcttgggtg	atgaagatgg	acctggacgt	gggcagcctc	atttctcttt	8580
agatcagtca	gatcgcccag	tccatcactt	ccaggcttgg	gttcccagcg	ttgatcacia	8640
cactgtgtga	gattcagggg	gttgtctctg	ataccctgat	ttttgagtca	ctcagtcctg	8700
tgatcaacct	tgccacatt	aagaagaact	gctggaacct	tgccgatcca	tctatcacat	8760
ttcaggggac	ccgcgcgacg	cgcaccagag	cttcggcgctc	ggcatctgag	gctcctcttc	8820
catcccagca	tccttctcag	cctttttccc	agtgaccacg	gcctccactt	ctatccacct	8880
cagcacctcc	atacatgcat	ggacagatgc	tcaggctcct	gtaccagggt	cagcagatca	8940
tcattcagaa	cctgtatcga	ttgtccctac	atttgcagat	ggatctgcca	ctcatgactc	9000
cggaggccta	tcgtcagcag	gtcgccatgc	taggagacca	gccctccact	gacagggggg	9060
aagagccttc	tggagccgct	gctactgagg	atcctgcccgt	tgatgaagac	ctcatagctg	9120
acttggctgg	cgctgattgg	agcccatggg	cagacttggg	cagaggcagc	tgatcttatg	9180
ttttaatggt	ttcttttata	ttatgtttgt	gttctctttt	atgttttatg	ttatgttttt	9240
atgtagtctg	tttggttaatt	aaaaagaggt	agtagtaaaa	atattagtat	ttcagtatgt	9300
gttttctgag	taataagtgc	atgataactc	aagcaatcat	aattctttag	cttggttcaga	9360
aaggttcaac	acttgagatg	ccactgatcc	ttggagaaac	actggttctg	gaagcaaaag	9420
tcaggtaacg	aaatggaaca	tgaatagcac	agagtggaaa	ggtagcttg	atggaacaag	9480
gtcataactg	gtacgccgaa	tacttgttta	agtcctgtg	agcatggttg	tcaaactcta	9540
gagtcaactc	atagactctc	atgagtttaa	gagtttactt	cagtcccgcg	agttgactcg	9600
gaagcaaaact	cgcttttgag	caaactcgtg	gactcggagt	gaactcatgt	aaactcgtaa	9660
gagtctacga	gttgactcta	gagtttgaca	accatgcata	agtgttcaaa	attaagcat	9720
ttaaataatt	aaaaaaagca	caaagtctt	caaagaagca	tggtcaatcc	tctaatagga	9780
tcacttctcat	gaatatcatc	actttcatca	tcactctccat	ctccatcatc	atcatcaagg	9840
tcttctcag	attgtgcac	atcattaggt	tcacacaaaga	ttaaattatc	tagatcaaaa	9900
gcttaaaata	gatatacaat	atgctatatt	agaaatagtt	aaaacttaaa	ataatacaca	9960
agcaaatttt	aaatatgaga	aagttcagaa	attatacctt	ttcttggtgt	tattaaagtt	10020
tcattttatc	ttctcttttg	cattttccat	ctcctcacat	atgaaaagca	taattctatt	10080
gaatttcagt	aacaagtttg	atccaactcc	aacattgtaa	ggtcagttgt	tgtgttttgt	10140
aatagactaa	tatgaagtat	gaagtatgaa	ctatgaactt	attgtcatct	gtttgcaaat	10200

```

tgggtgcattt tgaatatatt tacttattat ccattttttt ttttttacga agtagactct 10260
cacgagtcctg cgtagactct cgatatcgat aacottgccg atgagagtgt gaacttaatt 10320
gtgagagaaa atgcctattt ttaagttcct ggttttgcat cattcttaga cggttagaat 10380
agttacttaa ggtggatatg atcaaggcca tgtttgtttg tttacctact tagccaaaaa 10440
gccaacctaa catagtttta ccccttgcac ccatgattga gccaaactgat ttttttgaat 10500
taaccttgag ccaattaaac aaaatcctga ccttttagga ttttaagaga gtaaaaatgg 10560
gttataaagg tcttaatttg ggggattttg ggaaataggt agccaagaca ataagtacag 10620
cacacaaagt aggacacctt ttacaaacag taggcccaat ttcgaaaaaa aaatgaaaag 10680
aatttaataa agggcagaaa caaaagagca agagaggtgt caaaagaaaa gtgttggtggg 10740
gaaataaaag ggctaagtaa aaaggcctag gcagaatttg aaatttttgt tctcttttaa 10800
tcttaacttt gaatttccaa gaaaaacat gattttttgt aagccaggcc ccgatacaag 10860
ccaataaagt ccttagtgat ccaccaaagg taactagaga taactgtaac tgagatgaaa 10920
tgcaaaatth tgaagtgtta cttgcagggt gttatcaaat tgcaaacact aaactaggca 10980
cttgtgagca gagggaaaca ccagccttgt gaggaaagta aggcaagcca aatttgattg 11040
agttccagat gactaactga ttcaattcct ctgttgtaat gctttcattt taagatgttg 11100
acagatgcag aaaggaccag tgaaagaagg aggaactgag ccattgatag tgttggaata 11160
tttaagaact tgcttgagaa tttacttggt tttgggttttc ttggggacaa gcaaagtthc 11220
atthggggaa ttttgataac tgctaaataa ttgtgaatta atagtaaaga attattcaaa 11280
ttthggcctg aaattaatta ttagcagttt atttgtgatt aaaagttaga aaattaatta 11340
aattgaatth ttggttgag ataagaaaat tggagttaca ttaagcaaaa aaggcaacaa 11400
aaaatgaagg aaaagaagaa gtctgaagca ggcccagccc aacacgcacg ctaagcgcgt 11460
gtcacgcgct aagcgtgcaa ggcagtacag gcgctaagcg aggcgttaag ctogaagatg 11520
cagaatccgt tacgcgcgct aagcaagggc cagcgcgtaa gcgtgcgac caacagaaac 11580
acacgctaag cctgcatttc gcgctaagcg cgcgactga acgcgctaag cgcgagggtg 11640
cgcgctaagc gcgcttacga agggcccaaaa cccactttag cagctataaa tagagagtca 11700
gtccaagggg aacaacacat ctgcctcag agcacttccc tcagcattct aagcctaagc 11760
tctccctttt ctctttgttt ttattatcct cattctttct ttcaccccca gttgtaaacg 11820
cctcaatggc catgagtggc taatctagta gctagggcct ggagggccta aaaagccaac 11880
gatatatggt gtacttcaag agttatcaat gcaaagaaga ttcatccag gtttttttgt 11940
totaattatt ttctttttat cttgcattca tttcttgaat ttcttttggg ttttatttgc 12000
tcgggagagg gtatttccta ataagggttt aaggattaat gcatgcatca gttttagggg 12060
ttatacgctt gggaaagggg aacacctaat agaactcctt aagaaaagaa tcatcgggtt 12120
agcattgcta ggcatagaat gataactcaa tgcccacgca ttagcaaca tctagaatth 12180
taccttaatg cattttaatt attgagtctt cgcaaaggca tttgggagat aggtagttaa 12240
aataggcttg tcatcgtag gcatcagggg caagtaaaat taatagatgt gggtagaact 12300
gttacaaatg cattggtaat gaatatcata tttacatgca tcgtaggcca attgggtttg 12360
tccggtcttg gcatttatat taattgtctt tctaaaacta tttgatctag taatagcaat 12420
ctattcttgc acttactcct gtttttacta ttttactcct acaaattgaa aagtattcga 12480
taaagtgcaa taaaatccct gtggaaacga tactcggact tccgagggtt actacttaga 12540
gcgatttggt acacttgcca aagtctcaac a
12571

```

<210> 21

<211> 4609

<212> DNA

<213> Glycine max

<400> 21

```

gatctcccat atcctatggt acccaccaag aagaacaagg aacattactt ctgacgtttc 60
ttggaaatat tcaaaggact ggaaatcaac atgccattcg gggaagcctt acagcagatg 120
cccctctact ccaaatttat gaaggacatc ctcaccaaga aggggaagta tattgacaat 180
gagaatattg tggtaggggg caactgtagt gcaataatac agaggaagct acccaagaag 240

```

tttaaggacc	ccggaagtgt	taccatcccg	tgcaccatag	gaaaggaaga	ggtaaacaag	300
gccctcattg	atctaggagc	aagtatcaat	ctaagccct	tgtcaatgtg	cagaagaatc	360
aggaatttga	agatagatcc	caccaagatg	acacttcaac	tggcagaccg	ctcgatcaca	420
agaccataca	gggtggtaga	agatgtcctg	gtcaaggtag	accacttcac	ttttccggtg	480
gactttgtta	tcattgatat	cgaagaagac	acagagattc	cccttatctt	aggcagaccc	540
ttcatgctga	ttgccaactg	tgtggtggat	atggggaatg	ggaacttggg	ggtgagtatt	600
gacaatcaga	agatcacctt	tgaccttttc	aaggcaataa	agtaccata	ggaggggttg	660
aagtgcctta	gaatggagga	gattgataag	gaagatgtca	gtattctcga	gacaccacag	720
tcttcgctgg	ggaaagcaat	ggtaaagtgt	ttagactgtc	taaccagtga	agaggaagaa	780
gatctaaagg	cttgcttgga	agacttggtg	tgacaagaca	gtatttcctaa	gggagaagcc	840
agatttgaga	ctctagaaaa	ggaagtcccg	tccgagaaga	agaagataga	gttgaagata	900
ttgcccgatc	atctgaagta	tgtgttcttg	gaggaagata	aacctgtagt	gatcagtaac	960
gtactcacia	cagaggagga	aaacagggtta	gtagatgtcc	tcaagaaaca	cagggaatca	1020
attggatggc	acacatcgga	tctcaaggga	attagccctg	cttactgcat	gcacaggata	1080
atgatggaag	aggactacaa	gccagtctga	caaccccaga	ggcggctgaa	tccaacaatg	1140
aaggaagagg	taagaaaaga	ggtactcaag	ctcttggagg	ttgggctcat	ataccccatc	1200
tctgacaacg	cttgggttaag	cccagtacag	gtgggttccca	agaaagggtg	aatgacagtg	1260
gtacaaaatg	agaggaatga	cttgatacca	acacgaacag	tcactggctg	gcgaatgtgt	1320
attgactatc	acaagctgaa	tgaagctaca	cggaggagcc	atttcccctt	acctttcatg	1380
gatcagatgc	tggagagact	tgcagggcag	gcatactact	gtttcttggg	tggatactcg	1440
ggatacaacc	agatcgcggt	agaccccata	gatcaggaga	agacggctct	tacatgcccc	1500
tttggcgtct	ttgcttacag	aaggatgtca	ttcgggttat	gtaatgtacc	agccacattt	1560
cagagggtgca	tgctgaccat	tttttcagac	atggtggaga	aaagcatcga	ggtattttatg	1620
gacgacttct	cggtttttgg	accctcatth	gacagctgtt	tgaggaaacct	agaaatggta	1680
cttcagagggt	gcgtagagac	taacttggta	ctgaattggg	aaaagtgtca	ttttatgggt	1740
cgagagggca	tagtcttagg	ccacaagatc	tcagctagag	ggattgaggt	tgatcgggcg	1800
aagatagacg	tcacgagaa	gctgccacca	ccactgaatg	ttaaaggggt	tagaagtttc	1860
ttagggcatg	cagggtttcta	taggaggttt	atcaaggatt	tctcgaagat	tgccaggccc	1920
ttaagcaatc	tgctgaataa	agacatgatt	tttaagtttg	atgaagaatg	ttcagcagca	1980
tttcagacac	tgaaaaataa	gctcaccact	gcaccggtaa	tgattgcacc	cgactggaat	2040
aaagattttg	aactaatgtg	tgatgctagt	gattatgcag	taggagcagt	tttgggacag	2100
aggcacgaca	aggatattca	caccatctat	tatgctagca	aggctcctgaa	tgaagcacag	2160
ttgaattatg	caaccacaga	aaaggagatg	ctagccattg	tctttgcctt	ggagaagttt	2220
aggtcatact	agatagggtc	gagggtcacc	attttcacag	atcatgctgc	catcaagcac	2280
ctgctcgcca	aaacagactc	aaagctgagg	ttgattagat	gggtcatgct	attacaagag	2340
tttgacatca	ttattaagga	caagaaagga	tccgagaatg	tggtagctga	tcattctatct	2400
cgattaaaga	atgaagaagt	caccaaggaa	gaaccagagg	taaaagggtga	atttcctgat	2460
gagtttcttt	tgcaggttac	cgctagacct	tggtttgcag	acatggctaa	ctacaaagcc	2520
atgggaatca	tcccagagga	gtttaattgg	agtcagagga	agaaattttt	gcacgatgca	2580
cgcttatatg	tgtgggatga	tcctcatthg	ttcaaggcgg	gagcaaataa	tttattaagg	2640
agatgcgtca	caaaggagga	agcacgaagc	attccttggc	actgccacag	ttcaccctat	2700
ggcatacatc	acagcgagga	tagaacaaca	gcaaaagtgc	tacaatcaag	ttttttctag	2760
ccctttatth	ttaaagatgc	tcacgagttt	gtgcattggt	gtgataaatg	tcagagaaca	2820
agggggatat	ctcgaagaaa	tgagatgcct	ttgcagaata	tcattggaggt	agagatcttt	2880
gatagttggg	gcatagactt	catggggcct	cttccttcat	catacaggaa	tgtctacatc	2940
ttggtagctg	tggattacgt	ctccaaatgg	gtggaagcca	tagccacgct	gaaggacgat	3000
gccagggtag	tgatcaaatt	tctgaagaag	aacatttttt	cccatttcgg	agtcccacga	3060
gccttgatta	gtgatggggg	aacgcacttc	tgcaacaatc	agttgaagaa	agtcctggag	3120
cactataatg	tccgacacaa	ggtggccaca	ccttatcaca	ctcagacgaa	tggccaagca	3180
gaaatttcta	acaggagatc	caagcgaatc	ctggaaaaga	cagttgcatc	atcaagaaag	3240
gattgggcct	tgaagctcga	tgatactctc	tgggcctata	ggacagcggt	caagactccc	3300



atcggccttat caccatttca gctagtatat gggaaggcat gtcattttacc agtagagctg 3360

gagcacaagg catattgggc tctcaagttg ctcaactttg acaacaacgc atgcggggaa 3420  
aagaggaagc tacaactgct ggaattagaa gagatgagac tgaatgccta cgagtcaccc 3480  
aaaattttaca agcaaaagac aaaggcatat catgacaaga agctacaaaag gaaagaattc 3540  
cagccagggc agcaggtatt actcgttaac tcaaggctaa ggctattccc aagtaagctg 3600  
aagtccaatt ggtcagggcc attcataatc aaagaagtca gacctcacag agcagtagaa 3660  
ttggtggacc ctagagaaga gaactttgat aagaaatgga tcatcaatgg acagcgcttg 3720  
aagccttata acggaggaca actagagcga ttgacgacca tcatctactt aaatgaccct 3780  
tgagaaggcc tactgtcgag ctaaagacaa taaactaagc gctggttggg aggcaacca 3840  
acataattttg taaaaatgta gttatcttca ttctatgtaa aaaaaagcc caacaggtgc 3900  
aaataggaaa cagcaggtgc aaaaagcaaa ggcccaacat gtgaagacaa caataggagg 3960  
ggtgccaata gcaaaactga agtgggctac acgaagctac gtgcttagct cgcgtccgcg 4020  
cgctaagcgc ccagattgca caaaaatagg tgagacttgg aatctggact attgctgtaa 4080  
tatcttgcag gtaccattac gctaagccct acacagaggc ttagcgagaa caggcagcat 4140  
ggaaaaaggg aaggaggagc gcgctaagcc acaacaagta atagaagaaa acgaagcacg 4200  
cgcttagcgg gcaactgccg gctaagcgca ctcttcaaca tcagtgaacg cgctaagcgc 4260  
gtgccagaag cgctaagcgc gtgtcaccgt caccagcagg aaggcgctaa gcgcgaggtt 4320  
gggccttagg gcccatcagc cttcgcgcct tactttttgc acacccttc tttactaact 4380  
gcacccttat tttgatttct ttttgacccc cctctgttta ctaactgcag tttgtttctg 4440  
ctgtttcttg tttttgtttc agatggcctc ctgcaaacgc cgagccgtgc ccacaccag 4500  
ggaagcgtct aattgggact cttccggtt cacttcagag attgcatggc acagatatca 4560  
ggacaacatt cagctctgga acatccttcc ggagaggaat gtcgagctc 4609

<210> 22

<211> 9139

<212> DNA

<213> Glycine max

<400> 22

acctggttgt ttgtatgctt gtcttaatgc ggatagggtt tcaagtagct ttagtgctaa 60  
cactgagaag aatccgaagg aagaatgtaa agttttaatg acaaagagca gaatggaaat 120  
tcaagttgat gaagttagag ctgaagagaa ggtggaggga tataaacaac agtcgatagc 180  
tgagcctgca ctggaactag ttccgatct tattgaactt gaggaagttt tggaagagga 240  
agatgaccaa caggagagag agacaccaat aaaagatagt caagaaggaa taaagatgaa 300  
ggaagagcat gaaaaagaaa acaaaaaaga aaaagaagaa atagaaaaag aaaataataa 360  
aaaaaatgaa aaataaaaaa agatggttga tgaggagaaa aaaaagagca agagtgaggt 420  
ttcaagagaa aaaaagagag agattacttc agctgaaggc aaggaagtac catatctatt 480  
ggtaccttcc aagaaggata aagagcaaca cttagccaga tttcttgaca tcttcaagaa 540  
actggaaatt actttgcctt ttggagaagc tctccaacag atgccactct atgccaaatt 600  
tttaaaagac atgctgacaa agaagaacta gtatatccac agtgacacaa tagttgtgga 660  
aggaaattgt agtgctgtca ttcaacacat ccttcccca aatcataagg atcccgaag 720  
tgtcactata ttatgtttcca ttagcgaggt tgttgtgggt aaagctctca tagacttggg 780  
agctagtatc aatttaaatgc ctctctcaat gtgtcgacga cttggagaga tagagataat 840  
gccacacgc atgacccttc agttggttga tcaactccatc acaagaccat atggagtgat 900  
tgaggatatg ttgattcagg tcaagcaact tgtattccct gtagatttcg tggttatgga 960  
tatagaggag gatcctgaca ttcccataat cttgggacgt cctttcatgt ccgcgaccaa 1020  
ctatatagta gatataggga aaggcaagtt agaattgggt gtggaggatc agaaagtctc 1080  
attcgactta tttgaagcaa ataagcatcc aaatgataag aaagcttgct ttgatctaga 1140  
caaggtagaa caataaatag aattagctac tatagccatg gtactgaact ctcccttggga 1200  
aaaagcattg attaatcatg tagaatgtct tactaaagag gaggaacatg aagtgcaaac 1260

ttgtattaaa	gagttggatg	gtgcaggaga	aaattctgag	ggacaggatg	catttcaaga	1320
attgaagaat	ggtgggcaaa	tagaaaaacc	aaaagtagaa	ttgaagacct	tgctgcaca	1380
tttgaagtat	gtatttctcg	aagacaatga	ctccaaacca	gtgattatta	gcagctcggt	1440
gaagaaaata	gaagatcaac	tggatgaagat	tttgaagaga	cacaaagctg	caattggatg	1500
gcacatatct	gacttgcaag	gaattagtcc	atcttattgc	atgcacaaaa	tcaatatgga	1560
agctgattac	aaaccagtga	gagagcctca	aagaagactg	aaaccaatca	tgaaagaaga	1620
gagtcataag	gaggtgctta	aattgttagga	agcaggcctt	atttaccctt	cctcgatag	1680
tgcatgggtt	agccttgtgc	aggttgtccc	caagaaagga	ggtatgacag	tcattaaaaa	1740
tgataaagat	gagttaatat	ccataaggac	tgtcacccgg	tggagaatgt	gcattgacta	1800
tcggaagctg	aatgatgcc	ctcggaagga	ccattatcca	cttcctttca	tggaccaa	1860
gcttgaaaga	ctttaggggt	aatcctatta	ttgttttctc	gatgagtact	ctggctataa	1920
ttagattggt	gttgatccta	aagatcaaga	gaagactgct	ttcacctacc	cttttgggtg	1980
attcgcatat	cggcacatgc	cttttgggtc	gtgcaatgcc	ccagctacat	ttcagagggtg	2040
tattatggca	atTTTTtctg	atatgggtga	aaaatgcac	gaagttttca	tggatgattt	2100
ctctatTTTT	gggccatcct	ttaaggggtg	cctattaaat	cttgaaagag	tattacagag	2160
atgtgaagag	tccaatctag	ttctcaattg	ggagaaattc	catttcatgg	ttcaagaagg	2220
aatagtgcctg	gggcataaaa	tttcagtaag	gggaatagag	gtggacaagg	caaagattga	2280
tgtaattgag	aaacttcctc	ctccaatgaa	tgccaaagaa	gtgagaagtt	tcttatgaca	2340
tgccaggttc	tacagatgat	tcataaaaga	tttctcaaaa	gtcgcccgag	cacttagcaa	2400
tctgttgaat	aaagatgttg	cttttgtgtt	caatcaagag	tgcatggaag	catttaatga	2460
tctgaaaacc	agattagtgt	ctgctccagt	aagtatagca	ccagattggg	gacaagaatt	2520
tgagttgatg	tgtgatgcaa	gtgactatgt	cgtaggtgta	gtgcttcgac	aacggaagg	2580
aaaactTTTT	catgctatat	actacgccaa	caaggttcta	aatgatgcac	aggtgaacta	2640
tgctaccata	gaaaaagaaa	tgctggcaat	tgtctatgca	cttgaaaagt	ttagatctta	2700
tttggtaggt	tcaagagtta	tcactacat	cgatcacgca	gctattaaat	atttgctcaa	2760
caaggctgat	tccaaacct	gattgataag	atggatcttg	ttgttgcaag	aatttgattt	2820
ggtgattcgg	gataaaaagg	gatcggaaaa	tgtttagct	gaccatttgt	ctagattgg	2880
gaatgaggaa	gtcacattga	aagaagcaga	agtgaagat	gaattccctg	atgaatcatt	2940
attcttagtg	agtgaagac	cttgggttgc	cgatatggcc	aacttcaaag	ctacaagaat	3000
catcccaaag	gacttaactt	gtagcagag	gaagaaattc	ctacatgatg	ctcgattcta	3060
tatctgggtt	gatcctcatt	tgttcaagat	aggagctgac	aatctcctat	gaagatgtgt	3120
gacacaagaa	gaggccaaga	acatattatg	aaattgccac	aattctccat	gtggcagcca	3180
ttatggtgga	gataagacga	tgaccaaggt	tttgcaatct	ggattctttt	ggcccatgct	3240
tttcaaagat	gctcatcagc	atgtgcaaca	ctgtgatcaa	tgtaagagga	tgaggggtat	3300
atcaagaaga	aatgaaatgc	ctctacagaa	tattatggag	gttgaggat	tcaattgcta	3360
ggggattgat	ttttaggttc	ccttcccttc	gtcttttggc	aatgaatata	tactagtggc	3420
gattgactat	gtctctaaat	tggttgaagc	agtggctacc	ccgcataatg	atgctaagac	3480
tgtggtaaag	tttctaaaga	aaaacatttt	ctcaagattt	ggggtgccta	gaattctgat	3540
taacgatgga	ggcacacact	tctgcaataa	tcacttatag	aagggtgtga	agcaatataa	3600
tgtgacacaa	agtagcatca	ccttatcacc	cccagaccaa	tgggcaagca	gaagtatcaa	3660
acaggggaatt	gaaaaagatt	ttggagaaga	ctatagcttc	tactagaaaa	gactagtcta	3720
tcaaattaga	tgatgcttta	tgggcataca	gaacaacatt	caagactccg	ataggattat	3780
ctccattttca	gatggtgtac	ggcaaggctt	gtcacttacc	agtggagatg	gaatataaag	3840
catactaggc	cttgaagttt	ttgaactttg	atgaagccgc	atccagagaa	caaaggaggc	3900
tgcaactttt	ggagttagga	gatatgagat	taactactta	tgaatcttca	aggctataca	3960
aagaaagggt	caaaaagtat	catgacaaga	agctgctcaa	gaaggacttt	cagccaggac	4020
gacaagagtt	gcttttcaac	tcaagactta	aattgttccc	tggaaagctt	acatcgaaat	4080
ggtctggacc	atttaccatc	aagaaagtcc	gcccataatg	agcagtggag	ctttgtgatc	4140
ctcaatctaa	agatcctgac	aggacatggg	tagtgaacgg	acaaagggtg	aatcaatatc	4200
atggttcatg	caatcctacc	cctcaagggt	attggataga	agactccaag	aggattgggc	4260
tagagctgct	aaagaaggcc	ttgggggtct	catgaacccc	agggtaaatt	tctgagccca	4320

tggaccaagg ttgggtcctc tcttctttgt aaatattaga atagggtttt ccttcttctc 4380

aggctaagca ccaatatgct tctgtttttc agtcctttga ataaggctaa gcgcagctgc 4440  
tgcactaagc ccttggttggt tgtcaaggag gttgagctaa gcgtgcccta ctgcgctaag 4500  
ctcaactatc toactatttt tgtgttttta tggtcaggct aagcgcgccc tatgtgctaa 4560  
gcctaagggg cattctgggt agcgtgagct aagcgcgcca tgcctgacta agcttagacc 4620  
cttttttgtt ttgaaaattt tagacttagg ctaagcccaa catgctacgc taagcctatc 4680  
tacagaaaaa ttttttgtgt ctttaggcta agctcgagtc tactgcgctt agctcatgag 4740  
taatatltta taaggcgcgc taagcccagc ctgctgcgct aagtgccagc ttcagttttc 4800  
agctttaatt ttttgttttt gatagaaata atcttattta acctgtgtgt ttgattttat 4860  
tctttcagat agcatcaaag aagagaaagg cacctgccac accttcccag gtctgatatg 4920  
gccgatcgag gttcacttct cttgtggcct aggaaggtta cactgatatt gtggtacca 4980  
ggaagatact ccctgagtggt aatgtggtta tctaccacac tgagtttgat gaggtttaagg 5040  
aagaactaga gagaagaaaa tgggatgagg aattgaccag ttttgatgaa ggcaacattg 5100  
atgttgccat tctgaaagag ttttatgata acctctatga ttccgacgat aaatcaccta 5160  
agcagggtgag ggtgagaggc catttggtga agtttgatgc agacactctg aacactttct 5220  
tgaagacccc tgtgataaatt gaagaggggg aaaagctgcc tgcctactct agatttgcac 5280  
tcttgagtcc tgatcctcaa gagttggcgt ctaagctctg catcccaggg agggaaattg 5340  
agcttaatgt tgacgacttg ccactaaaga tctcaggaa gaaaatgacc aactcgcctc 5400  
agactaggag tgttctttct tactccaact tggtcctac ctcacacact tctcacatca 5460  
cactggatcg ggccaagttg atttatggca ttatcatgaa gatggacatg aatttgggct 5520  
acctcatctc ccaccagatt tctatcattg ccagcatga ctcctctagg cttggattta 5580  
caaccttaat catagctttg tgtaaagcta aaggagtcac attagattcc aaatctttgg 5640  
agagtcttag ccctgccatt aacatggcat atataaagaa gaactgttgg aatctagatg 5700  
atccaacagt gacattcaga gagccaagga aggccagggg taaaagaatc gaggtctccc 5760  
ctacttcagc agcaccaggt gcttctgctc cttcttcac tctttacca gatccttcag 5820  
caccatccac ttcgactcca catcttccat ggttactagc ttcagctccc actcccttac 5880  
cagcttcaat tcagctcctt ctacaggacc ctcctcatc acctctaaga cattatttgc 5940  
tatgtgcaa agcctgcaca aaggccagat catcatcata cagaggttgt agagctctgg 6000  
ccagaaacca accatgagta tagaggagtt ccttgacaa gtggcttgcc caggagtcca 6060  
gccttctcct tctggagggg gtgaggcctt tgcagccaa gagccttgcc agcagagaag 6120  
cctgtgccag aagcagagga tgagcttgtt cttcctgagc catttgttta tgagattgat 6180  
ccagtcgctc aggaggaagc agcagctcag gagcttctg cacctatttc tgaggatacc 6240  
ctgccatctg caccagcatt ggagtaagag cagcctagtt cacaggatcc accagctgct 6300  
ccaatgctgg atctgaacga gcatgcagaa gatcagcagt aggatgatca tgagtttta 6360  
attctacata gtttttaaaa ttttgcaaat tatgaatagt tctttttatc aattatttag 6420  
ttcatgtcaa ttatttgttt atgctttatt agtctttaaa ttttagtctt ttaaattttt 6480  
gttgtttgag tgttgatagc ttgtacaaa gcatgtttga acagtgaact tattgattat 6540  
gatattcagt ggtgtgattt cttatgaatg aagtgtttgt gaatgacttg aatgagaaaa 6600  
tgtatgaatt gagtggactg gaatgattag atgtttgttt tgatcaagct tgtagtcatt 6660  
agaagaaaaa gaacatgtga ttagaagtat gactgaaaat gttagttagt ttgtcaaatt 6720  
gattgtgaag gaatgcattg accgtatccc agtgagagtg tgatccttaa attttgagag 6780  
aaatgacttt aatttagcac taatttttgc acgaatcttt gaagtatgga ttgaatgcat 6840  
gaattgagga taatgaaggc catgttttga ttgtgatagc tatttagcca aaaagctgac 6900  
cttggtgctg aatgatttat cccttgacc cagtttgagc tgaatgaatt attgattgat 6960  
tgaacctga gcctatatag tgttttctc tgcctccttg tcttaggta taggagagca 7020  
taatccacag aaaagcttgg ttcaaggcaa atttgttcca aatttggggg agacactggg 7080  
taaagaaata aaatggtcaa aacagagcaa catatacaca ttgttttctg tatgtaaaaa 7140  
aaactgtaag tataataaaa aatgtataaa agtgtgtgtg ctgcaaatca aatcaatgaa 7200  
agctaagtgc ttaataaaa gcaagtatgg ggtaggaatg aataaaaaaa aaagtaagg 7260  
tttatctatg gatgaatgct ctcgtagaat ctaagctttt gaatcctaga aaaaccatga 7320

tttgttggca	gcctaacctc	attacaagcc	tagaaagtc	tttggattca	ttttgtgtgt	7380
ttatttctgt	atggtatgag	atgaaatgca	aaagttagga	cttgtgttag	ttgttcatga	7440
tggaatgagc	ctaaacactt	aaagcttgagt	gaaacaatga	ctgtgaggct	ttggttgatg	7500
atTTTTtct	tgatatctgt	cattctcact	agcttatttt	agttgtgact	ctaatgcata	7560
tgttccatc	tttgaaaaac	tgcatgtttg	tgaagagaaa	ttggttgaag	cattccatga	7620
tattcatttc	atatgattga	atttctctgt	gaggagaaca	ccatttggat	tgaccactgt	7680
atTTTgtcac	ttgaggacaa	gtgaactggt	ctttctttgc	ttgaggacaa	gcaaaacttt	7740
aaatttgggg	gagtatgtta	gtcatcttat	acgactaact	tttgtataga	aaaaattttc	7800
caaaacttgt	atagtttctc	caatttatag	ttattttgta	gggatttcta	aataaatctt	7860
gTTTTattgt	tatagttgtc	tctagaatat	tttccatttg	atttaaatgat	gaaatctgtt	7920
caatttcagg	ttaaaagagg	ctaagctctg	aagtgcataa	agtgggattt	acgctcagct	7980
caccatttgg	cctcaacgcg	catccaccgc	taagcacagc	ttcagcgcac	ttagtgtgac	8040
agaagaatc	ggcagagcat	aaatatcaag	gccgcttgct	aagcaagatg	gttgccttta	8100
gccagactca	gocgatgact	ggcgcctaag	tcaaatccac	taactcgcgc	taagcacagg	8160
ggtggcacta	agtgcacagt	cgcggattta	aagcctattt	aaagcctgtc	ttgtgcagaa	8220
ttaggtaata	tacacacata	gaatttttag	aagcaataca	aaattccaaa	gcaaggacac	8280
cacagtgtca	atttcgatat	agaagctctg	gaggcagcaa	gaggagaagc	tttgcagaga	8340
agcctaggat	tcttcaatta	gagagagatt	agtgcagctg	agagtgattg	tgagggtgtg	8400
agaagaggag	gagggatccc	ccttcttggt	taaggacaaa	ttatttggta	ctctcaaact	8460
catttgtgtt	aggtgttttc	tgtaattggc	agctaaacac	ccttgtttgg	gatttctaag	8520
gaacaactga	tgtaattact	ttaatatcta	attaattatg	ttttatgtgt	tcaatgcttc	8580
tttcaatgct	taattactgc	atgctcttgg	tctgatcacc	catttgtgtg	tattgttagg	8640
tgacttttag	attgggaaat	gtaccgttgc	cttagaactt	gatagaagca	ggactaaata	8700
actacattac	cagggatgga	ttatgggggt	ttggttttct	aaatatgttg	tgatgataat	8760
gctattttaag	ttaaagcctag	tcatacaaga	gggatctgcg	gacgaagctt	aggttaaatt	8820
agtataaact	tacaagggat	cgcgatttag	tacttttagc	tacaacatag	aacacaagaa	8880
catgattaat	tagagaaata	tcctcatatg	catcaacttg	tttgttagaa	agacccaacg	8940
ctttttacct	attgttgtca	acttttactt	acttgcatth	tttttttacc	atagaagtag	9000
tttatttctg	ttttaaccat	caattatcaa	tgttgttcca	acaatgcctt	acttctgaat	9060
aaaactctgt	ctaataagca	agttccctaa	attcgatact	tggatcactc	tgttttaatt	9120
ttaaataact	gacaactca					9139

<210> 23

<211> 10482

<212> DNA

<213> Glycine max

<400> 23

tgttagtctg	cttatatgac	taacttttgt	atagaaaaac	ctttttcaca	acatgtatag	60
tttccccaat	ttataattct	tttgtaggaa	tttgtaaata	aatcttgata	tgttttgata	120
cctgccatta	gagtatcttt	agttggagtt	aatgagaaaa	tttgtacaat	ttcagggtcaa	180
aagaggctaa	aatcttgaag	tgctaaaagg	agcagtcgtg	ctaaatagag	cctgtgggct	240
cagtgcacat	ccaccgctaa	gtgcagcttc	agcatgctta	gcgtgacaag	ggaacctgaa	300
agagcacaag	aatcaagggtc	gcgcgctaag	cgagacgttt	gtcttttgcc	aggctcagcg	360
cacgactggc	gccaaagcca	aatccactta	ctcgcgctaa	gcgcgatgtc	gcgatttcag	420
agcctattta	agcctgaatt	gtcagaatta	gggtatgatt	ttaagagacc	agagctgtat	480
atTTTTgtcac	aaacttcgag	aatagtgtct	tggaggcagc	agagaggcag	cagctaagca	540
gggaagctag	ggttcatcac	tttgagagat	tagagagtgt	tttagtgatt	gtgagggtgc	600
aagaagacga	ggagggatcc	cccttcctgt	gtaagcaaca	attgctctgt	actttctgtc	660
tcatttgtat	taggggttct	tgtatggctt	ggtaaaaacc	ctagttgggg	atttctaatt	720
aacagttgat	gtaattactt	ttcatatcta	attaattgtg	ttttgtgtgt	tcagtgcctc	780

tttcaatact taattactgc atgctcttgg cctgatcacc ctcttgtgtg tactattagg 840

tgacttttagc attgggaaat gtagtgctgc catagaacat gatagaagca aggctaaata 900  
 actgcattac ctaggatgga ttgtgggggt ttagttttct tattatgctg tgatgataat 960  
 gttgttttaag ttaagcctag tccaacaaga gggatctgag gatgaagctt ggggttaaatt 1020  
 agtctaaact tatgagggat cgagggttag tacttttaggc ttcagcatag aacacaagaa 1080  
 catgattaat tagagaaata tcttcatatg cattaactcg tttgttagaa agaccaaca 1140  
 ctttatacct attgctgtca actttttaat tacttgctt tactgctttt taacatagca 1200  
 tctagtttac ttttgtttat attctcaatt atcaatgttt gttcacacaa tgccatattt 1260  
 ctaataaaaa ctttgtctaa taaacaagtt ccctgagttt gatactcgga ttattccgtt 1320  
 ttaattttta atgcttgata acctgggtgcg ttttccgata tttcatttcc cttgaatata 1380  
 ctgcttgtaa atttgataga aaggaaactgt gttgaagggt aaacaaaaat ttgacacaaa 1440  
 gcatttatgg cgccgttgtc ggggaactgg attcattaga agagttcagt tcagttttta 1500  
 ggcattgctt tattttgttt tctttaattc attgattctt tttgctaaca ttttagttac 1560  
 tgcacatttt attgttcttt ggaattggat aatttttgtt ttgtttcttt tgtatgcaa 1620  
 ggagatctgt tgtaggatg ttaattccca tagatttggg gattaatgct acttgcagga 1680  
 gacaaaatgc agagagaatt agaaattttt tgcaggactt agaagtagca gcaactctag 1740  
 gagagtgacc ctagaagatt actcaagtta aggccacagt ccaagcagct attagatgct 1800  
 tctgctgggg gaaaaataaa gttaaagacc cccgaagaag ccatggaact cattgaaaat 1860  
 atgactgcaa gtgacattac tattttgaga gatagagccc acattccaac aaaaagaagc 1920  
 ctactagagc tttcatcaca agatgcattg ttggcacaaa acaagttgat gtccaagcaa 1980  
 ttggaagcat tgacaaaaac actaagtaag tttccagctc aattacattc tgcacaatct 2040  
 ttaccatcta ctattttgca ggtcacagtg tgtgccatct gtggtggagc tcacgattct 2100  
 ggttgttgta tccccaatga agaaccaaca actcatgaag tcaattacat gggtaacca 2160  
 cctagaaata attttaatgc aggtggattt cccgaattcc agcatggaca gtaatacaac 2220  
 caacaacagg gacaatggag gaccaccctg ggaattaatt caatagagac cagggtggac 2280  
 cgtccacaag gccgtaacaa caagggccta gtctctatga gcgtacaacg aagttggaag 2340  
 agactctagc tcaatttatg caggtttcta tgtctaacca aaagagcacg gagtttgcca 2400  
 taaagaattt ggaagtccaa gtgggacagc ttgcaaaaaca gttggtggat agggcgtcaa 2460  
 agagcttttag tgctaacact gagaaaaatt cgaaggggga atgtaaagct gtcattgcaa 2520  
 gaagcagaat ggcaaccat gttgatgaag gaaaagctta gaagaagggt gaggagcata 2580  
 aacaacagtt ggcagctgag ccggcacttg aaccatttct tgattttgtt gaacttgagg 2640  
 aagttatgga agatgaagat gaccaaaggg aaaagagaaa gaagaagtag aaaaagaaaa 2700  
 atattagaaa aatgaaaaag aaaatgagaa ggttgaggaa agaaaagagga gcaagagtga 2760  
 ggtttcaaga gagaaaaaga gagagattac ttcagctgaa ggcaaggatg taccatatcc 2820  
 attggtacct tccaagaagg ataaagagcg acacttagcc agatttcttg acatcttcaa 2880  
 gaagtcggag atcacattgc cttttggaga aactctccaa cagatgccac tctatgccaa 2940  
 atttttaaaa gacatgctga caaagaaaaa ctggtatatc cacagtgaca cgatagctgt 3000  
 ggaaggaaat tgtagtctg tcaactcaacg catccttcca ccaagcata aggatccagg 3060  
 aagtgtcaca ataccatgtt ctattggtga agttgcagta ggcaaggctc tcattgactt 3120  
 gggagccagt atcaatttaa tgactctctc catgtgccag caacttgag agttagagat 3180  
 aatgccact cgcatgacc tacagttggc agatcgctcc attgctagac catatggagt 3240  
 gatcgaggat gtgttgattc aggtcaagca gcttgattc cctgcaattt tgtggttatg 3300  
 gatataagag aggatcctaa cattcccata atcttgggac gtcctttcat gtccacgacc 3360  
 agctgtgtag tagatatggg gaaaggcaaa ttagaactgg ttgtggagga tcagaaagtc 3420  
 tcattcgact tatttgaagc aatgaagcat ccaaatgatc aaaaagcttg ctttgatctg 3480  
 gataaggtag aataggagat agaattagct gctatagcca tggtagtga ctctcatttg 3540  
 gaaaaagcac gattaatcat gtagaatgtt tgaccaagga ggaggaacat gaagtgtaga 3600  
 cttgtattaa agagtggat ggtgcaggag aaaattccga gggacatact gcatttgaag 3660  
 aattgaagaa cagtgggaaa atagaaaaac caaaagtaga attgaagact ttgctgcac 3720  
 attcgaagta tgtatcttgg aagacaatga ctccaaacca gtgattatta gcagctcttt 3780

gaagaaaaca	gaagaagatc	agttggtgca	gatttttgaag	aaacataaag	ctacaattgg	3840
atggcacata	tctgacttga	aaggaattag	tccatcttat	tgcatgcaca	aaattattat	3900
ggaagctgat	tacaaaccaa	tgagacagcc	tcaaagaaga	ctgaacccaa	tcatgaaaga	3960
ggaggtgctg	aaggaggtgc	ttaagttgct	agaagcaggc	ctcaccccat	ctcagatagt	4020
gcgtgggtta	gcccgggtgca	ggttggttctc	aagaagggag	gtatgacagt	cattaaaaat	4080
gataaagatg	aattaatatc	cacaaggact	gtcaccgggt	ggagaatgtg	cattgattat	4140
cggaaagttga	ataatgccac	ttggaaagac	cattatccac	tccctttcat	ggaccatatg	4200
cttgagagac	tgcgaaggca	atcatattat	tgttttctgg	atggatattc	tagttacaat	4260
tagattgcta	tagatatcaa	agatcaagat	gtcgcacact	acccttcagt	gggagggcga	4320
cgcgtgactt	gcgcgtgcat	gttccaagaa	aggaatacgc	gcggagtgcg	caccaacggt	4380
tatttgagga	aaacgtcgga	aaaaccggaa	aagacgtgat	ctacgaactt	taagtgaag	4440
gttcgggagt	tgtatttaacg	cacggggaag	gtattagcac	cccacacgtc	cgtcacaaga	4500
gatgacaacc	tctaatacaa	tgtgcaaata	tgacttcaat	ttatgttata	ttcccccttt	4560
tttcacgttc	ttatgttttt	tttatgcctt	tttatgtttt	tatctttttg	tggttgacaa	4620
ggcggtttcc	ctttgtctct	acgtattcct	caattgtgat	gagaaaatca	aacctacgta	4680
gttcttttgt	gaacaaagcg	ttttggttaa	gttatttttt	atcctttttt	gcaagatatg	4740
ttttattgaa	tgaaggttca	tttaaggtgt	tggaccatta	gacaatcttt	cgattctttt	4800
gaaaagttag	aaaacattaa	ggcattggac	cattaatgat	ttctttattt	ttgaaagagt	4860
taacaaagtt	acataattgat	tttaggcttt	ttagaaatct	acacttaacc	aataaaaagcg	4920
gaaaagacca	tttcaaggcg	ttggaccttt	gaaaaatggc	gttttttaggc	gatgacaaaa	4980
gtttggttta	tgaattgatt	ttagccttag	tttcactttg	gttattagtc	gattcgattt	5040
aagaaagaga	aatcccaaag	aaaaacgtcc	gattgatttt	ttgatttatt	ttactaaaag	5100
atatttttga	ttattatatt	attattttac	ctatttttgg	ttttcaacgg	gttacggcat	5160
gaccgaacag	tccgatttca	ttttaacaga	aattaacgga	tgttacaatt	taaatgatcg	5220
gtggaaaattt	attttatttt	ttgattaggc	gagaaaatga	cttaagttaa	tgactaaagc	5280
acgtcaaaaag	ggggtacgga	aagtaaata	aatgaaaata	aaagcatgtg	aaacaaatga	5340
ggaccactaa	gggtacatag	aatgaattgt	ttgatttcgg	gaacttaccg	gttgaagatc	5400
gaagaacgac	gaagaacgaa	cgaagaacgt	cgatgaacgg	ttgaaaatct	tcgcaaaatc	5460
acccacggaa	acgttacgga	agcacctcgg	cttggatttt	cttcacggaa	acaatttttc	5520
tcactaattt	taagtgaatc	tcagatacca	ggaggggtcga	acatttttgt	tcttccctcc	5580
ttcccttatt	tataggaana	ggaaggagat	gcttgccacc	cagctcgccc	aggcgagcta	5640
ggttgcttcc	tccagaagca	aatcctggaa	ggcccaagtg	ggcctgggtg	ctatttgaac	5700
ccccaatttt	actaaatata	ccccctgcct	ttttttggtg	attctttttc	cgtaaagtta	5760
tggaaactta	cgaatttcgt	aacgatactt	gttttctttc	cgtaatgttg	tggaaacctta	5820
cggattacgt	aatcatccct	tttttgccct	cgggaacgtt	acagaacttt	acggattgca	5880
actaaacact	tccctttta	tttcggcatg	tcacgaactt	cacggattgt	gctaccacgc	5940
ttttcttttg	gcttcogaca	tgtctcgga	cttcacaaat	tgcctaacca	tgggtgccaa	6000
atacctcgaa	gtggtcaaac	gacggtcgca	tcccaacaac	ggatggttct	cggacgaaat	6060
tagggtatga	cacaagagaa	gacaactttc	actttccctt	tcggtgtatt	tgcataatga	6120
tgcattgcctt	tccgtctatg	caatgcccta	gctacatttc	agaggtgtat	gatggcaatt	6180
ttttctgata	tgggtgaaaa	atgcattgaa	gttttcatgg	acgatttctc	tgtttttgga	6240
ccatctttga	tgggttgctta	tcaaatctgg	aaagagtatt	ttagagatgt	gaagagtcca	6300
acctggtact	taattgggaa	aatgtcattt	catggttcaa	gaaggaatag	tgctggggga	6360
taaaaatatca	gtaaggggaa	ttgaggtgga	taaggtgaag	attgatgtca	ttgagaaact	6420
tctcctcca	atgaatgtca	aacgaatgag	aagtttctta	ggacatgatg	gattctatag	6480
gtgacttata	aaagattttt	caaaagtcgc	caaaccactt	agcaatttgt	tgaacaaaga	6540
tgttgctttt	gtgttcaatg	gaaagtgtat	tgaagcattt	aatgatttga	aaaccagact	6600
agtgtctgct	ccagtaatta	ctacaccaga	ttgggggttaa	gaatttgagt	tgatgtgtga	6660
cgcgagcgat	tatgctatag	gtgcagtgc	tggacaaagg	aagggcacaa	tttttcatgc	6720
tatctactac	gccagcaaa	ttttaaatga	tgcacagggt	aactatgcta	ccacagaaaa	6780
agaaatgttg	gcaattgttt	atgcacttga	aaagttcaaa	tcttatttgg	taggctcaaa	6840

agtcacatc	tacattgatc	atgcaactat	taaatatttt	ctcaacaagg	ccaattccaa	6900
aacctgtctt	aataagatgg	atgttgctgc	tgcaagaatt	tgatttggtg	attcgggata	6960
aaaagggatc	ggaaaatgtt	gtagctaacc	aatttgctta	gattggggaa	taaagaagtc	7020
atgtcgaaag	aagctgaaat	tagagatgaa	ttccctaagt	agtcattatt	cttggtgaat	7080
gagagacctt	gatttgctga	tatggccaac	ttcaaagccg	caggaatcat	tccaaaagac	7140
ctaacttggc	agtagaggaa	gcaattcctg	catgatgctc	gattttatat	ctgggatgac	7200
cgcactttgt	tcaagattgg	agttgacaat	cttctccgaa	gatgtgtgac	acaagaagaa	7260
gccagaaca	tattatggca	ctgtcacaat	tctccatgtg	gcggccatta	tggtggagat	7320
aagacgacga	ccaagggtttt	gcaatctgga	ttcttttggc	ccacactttt	caaggatgct	7380
catcagaata	tgctgcattg	tgatcaatgt	caaaggatgg	ggggcatatc	aaaaagaaat	7440
gaaatgcctt	tacagaatat	tatggagggt	gaggtatttg	actgttgggg	gattgatttt	7500
gtaggtcctt	tccctttgtc	ttttggcaat	gaatacatat	tagtggttgt	tgactatgtc	7560
tctaaatggg	ttgaagcagt	ggctaccctg	cataatgatg	ctaagattgt	ggtaaagttt	7620
ctaagacga	acattttctc	cagatttggg	gtgccagag	ttttgattag	tgatggaagc	7680
acacattttc	gcaataataa	gatacagaag	gtgttgaaagc	aataataatgt	aacacacaag	7740
gtagcatcag	cttatcaccc	ccaaaccaat	gggcaagcag	aagtgtcgaa	caaggaattg	7800
aaaaagattt	tagagaagac	tatggcttct	actagaaagg	actggtccat	taaactagat	7860
gatgctttat	gggcgtatag	gactgcattc	aagactccga	taggtttatc	tccatttcag	7920
atgggtgatg	gcaagtcttg	tactttacca	gtggagatga	aataataaac	atattggggc	7980
ttgaagttgt	tgaactttga	tgaagccgaa	tccagagaac	aaaggaggct	acaacttttg	8040
gagttggaag	agataaaatt	aactgcttat	gaatcttcac	agttgtacaa	agaaaaaatt	8100
aaaaagtatc	atgataaaaa	actgctcaag	agggattttc	aacaaggaca	acaagtgttg	8160
cttttcacct	caagacttaa	attgtttcct	gggaagctta	aatcgaaatg	gtctagacca	8220
tttaccatca	agaaagtccg	aacatatgga	gcagtggagc	tttgtgatcc	tcatatgggt	8280
ggtgaacgga	caaaggctaa	agcaatatca	tggtggagct	attgagagat	tgaacactat	8340
tctacacttc	aatccaggat	aacaggacga	tgcttcaagc	taatgacgtt	aaccgagcgc	8400
ttacggggag	gcaaccagg	tctcttttta	tttctatttt	tcttgcaatt	aatttagtta	8460
gtttaattgc	ttgtgattgt	aaatgatttc	taagcttggg	tagtattgag	aaaagggttt	8520
caaagtttta	gtaaagagat	ggatagaaaa	gacttagaga	aaaaattttc	agttgtccat	8580
cgcctaagcg	cagcccttgt	gctaagtgcc	atgtcttaat	gcaactaagca	tgtgcttgct	8640
tgcgctaagc	actttgacct	ttcaccagtt	ggctagatgg	ttcagctaag	cgcacatcac	8700
tgcgctaaac	ctaagttctt	ctctggattt	gaacttcatg	acttgggctt	agaggagttg	8760
atgcgctaag	cgcaactcct	tctctgttga	aaaattattg	taatagcatt	aagcttaatt	8820
tctctcttgg	aattgaactt	tcaggaattg	ggcttagcag	caggatacgc	taagcgccaa	8880
tctttcacta	ttttgaaata	cttggaattg	cgctaagcct	ggaaccatca	ctgtaagtag	8940
agcttgtttt	agtgcctaagc	ctaacatctt	aggctaagtg	aaaattgcag	gaccaatcag	9000
agttgcagac	agtgcctaagc	gcgtgtcctc	gcactaagct	tgaatacctc	tctggaattt	9060
gaaattattg	aattaggctt	aacgcgagag	gtggcgctaa	gcgcatgggc	cttaaaactca	9120
aatgtcatgt	tggcattgcta	agcgcaacta	tgcgctaagt	gcgcaaaca	aaaatgctaa	9180
aataaaatag	aactaccaat	ggcagttacc	atttacactt	caaagctttt	actcccttat	9240
gcttgtgccc	acattcgtgc	ttttgtgcat	tttgcctgct	ttgcttcaag	ttattcctgc	9300
tttcttgcct	tcatcttgca	tttccatcac	aatccaagta	agttttcatg	tttattttca	9360
ttttctttta	taagcttaaa	ccttagggta	gatgatttag	tgcttttttag	tttgcaattt	9420
tttttagggt	tagtggtttt	aggttagttg	ttagttaagg	taggttttagg	gtttacaatg	9480
taggttttag	gttaggtttt	tgagccctt	aggggcaatg	cctgaaaaag	gggtgaaaac	9540
cgtgagtaa	tttctagaaa	tagcgatgaa	cgtgctaagc	gcacctgctg	tgcttagcca	9600
gttcacgca	acttcttctc	aatgagtttc	aatgatgagc	tcgataagcg	cgtttgtgcg	9660
ctaagtgaga	caagtgtttt	agacacttag	tatttttttc	aatttttgtt	cagcactaaa	9720
gcctggcttc	tcaggctaaa	gcacaattct	gtctttattt	ttcaattggt	ggaataaggc	9780
taagtgcagc	ttgttgtgct	aagcccatgt	tatgtcttag	tgagggttag	ctaagcgtgc	9840
cctactgcgc	taagctcaat	tctccactg	ttttcaaaag	tgtggattta	ggataagccc	9900

```

agcttgttgc gctaagccta gtctatggaa aaacatthttc tgagtactca cgctaagcgt 9960
gtggctatcg ggcttagccc atgagtaa atttcataaag cgcgctaagc ccagccttct 10020
gtgctaagca cccagtccta ctttcagttt tttttttttg tttttgttga ataactcctgt 10080
tttaactctg ttgtttgatc taattctttt cagatggcat cttaggaagag aaaggcccat 10140
gcctcaacat cccaggcccc ctatgataga tccagattca catctcagga ggccctgggat 10200
cgttattcta gtgttgtcat tggcaggaaa atattacctg aaagaaatgt catgctctat 10260
tacacagagt ttgatgaatt cactgaagag ttagagagaa gaaacaggca caaggagtta 10320
acaaatthta tggatggcaa cattgatgtt gccattatga aggagttcta tgctaacctc 10380
tatgaccag aggataaatc acctaaagcag gtgaggttca gaggtcattt agtgaaattt 10440
gatgcagatg ctctgaacac tttttttatg acccctgtga tc 10482

```

<210> 24

<211> 1857

<212> DNA

<213> Arabidopsis thaliana

<400> 24

```

atgagcaatt acagtggcag ttcttctgtt gatcctgact acaacatgga tgagacagaa 60
tcgtcatctt caaggccaga gagagaacag agagaatacg aaagtttcag aaggaaagct 120
gagatagccc gaggaagag agcgatgaga gagaggatag agcttataga cgaagatctg 180
gaggacgagt acatgcctga acagactcgc agagctacca aacttctgca caagcccgac 240
atattgcctg ctgaggaata tgttaggctt ttcaagctga atgagttctg tagcacgagg 300
tatccttgct cgacctcact tgcacaactc ggattgttgg aagatgttca gcacctgtac 360
caaagtgtgc atctggacac tttgatggct tatccgtatg tagcatatga agatgagaca 420
atacaattcc tctccacact acaagtagag ctctaccaag gtatgacctc tgatgagttg 480
gattgtgaag gattgggatt cttgcgattt tctgtgtatg gtcattgagta cagggttatca 540
atcaagcgat tgggaaggatt gtttgatttt cccagtggaa cgggatctaa gccaaagtat 600
gaaagagaag agttgaaaga cttgtggatc accatcgga gctctgtacc gttgaatgct 660
tccaggtcaa agagcaatca gatacgcagc cctgtcatca ggtacttcca gcgttctgta 720
gccaacgtac tctactcccg agagattaca gggactgtca ctaactctga tatggagatg 780
atcgcaatgg cctcaaagg aactctccgc caaactaaaa atggcatgtc cctccagggt 840
gaagtcaatg acacacctct ctctatactt cttctgatcc atctgtgtgg atacaaaaac 900
tgggcggtca gcaataaccg caagagagca cgaggcgctc tgtgcatagg tggcgtgggtg 960
acacctattc tgatagcttg tggagtccca ctcatthctg ctggactcga gccacgagca 1020
atggatatcg agcacctacg tcactgcca ttcttgaggt ttgcaatggg tgacgatttc 1080
cacaggttca ggtttgagca ctctacagac aggagagcta acatccttct ccctagccct 1140
gaggtcacac ggataatcga gggagataac attgatttta ggcttgagat tggacgcctc 1200
tactatgaga acgctccacc attagatgag gacgatcttc ttgaagaagc tgcttcggat 1260
gggatggatg aagatggagc agtaaagttc gacactagca tgtatcactt tgctgaacat 1320
gtacctccag cgaggcagag caagagcttg actgaagctc ataagaatta cagtaaattg 1380
cagaagtggg gcaagaagca ggacaggctg atcgccaagt gtttcaagct tctgacagac 1440
aagctgagtt gctcttctc caccactgct attccacagg tacaacctcc tatggaaatg 1500
ccatcgagga gaattaatgc acctgcgcac aggcctgagc ttagcgagca gagagtccca 1560
catgtccagg ctaggcattc gtcattcgaa tcccggaac acaagagaag aaggaggct 1620
acactcactc gatctagcag cagatcacgc ctcatthact cgaggagatc actcgaccgt 1680
ggtgctggcc gcagcagaag gagagatgtc gaggthctc agagcgggtg tggccgccac 1740
agagctgatg aggtcgagta cccatctgct ggagctgata cagaacaagg aggttcgtct 1800
atggcctggg agcaatcgca ggcagccatt gacgagcaac tacgttcatt ctctgac 1857

```

<210> 25

<211> 1254



<212> DNA

<213> *Pisum sativum*

<400> 25

```
atggaatcca ggtccggagc ttcgaaaaag agaaagggcg ggaatagttc ccgtcccgtg 60
cccatacaat tgcacaccga caaatTTgtc gggccaaagc aagcagtaag atatgttgct 120
ttggaaaagc gaaagatTTT gccgaaaag agatTTataa tcaaccctga aggcacgaac 180
cgtacattcg ccgggctgat taacagcaaa aagtgggacc ggttaatatc ccccttgaag 240
cattacgaca tgcgaacagt gcgtgagttc tacgcgaacg cactgccgaa cgacgacgag 300
ccattcacat ggacgtctag agtgtccggc cgtcctgTTg cgttcgatcg ggatgcaatt 360
aaccgtgtcc tgggtgaacc gtcctatctg ggagccaatg agagagacac ttaccaccaa 420
gatttaaggc ttcaccggga taccgattcg atTTtactg ccctgctTTT ggaagggaaa 480
tcagttgagc tgaaccatc tggggttccg atgagatacc atagggagga catgattccc 540
ttggtcTaaC tgatecTTTt gttggtTctt acaaacatca aacccaagtc tcacactTct 600
accgtgccga tcccagtggc acacttggtg cacatcatcc tcacgaatat ccagattgat 660
gtggcaagga ttattgctTT ggagttgaag tccgtgattg aaagcgggct aaagtcgggg 720
gaacgagtga attgtccctt tgctTTccct tgtctaatac tggctTTgtg ccaacaagcg 780
agggtgaggc taccctccaa ggtcaagta aggatcccg cggccattga tgaccgatac 840
gtggccaagt actgcaaac gaagaatgta agaagtagtt cagctgctga ggttaccggg 900
gcttctgatg gtcctggTac ttttactcta ggatccgatc ctttccagca ggctgtctgc 960
aactacaact gggattggat ggcggaact cagcgcgTca tgctcgatat gcacgattct 1020
atgcagctgt tacagttgca gatgcgcgac ccctccggTg agcattctat gatgtcacgt 1080
gagcagTTtC tgcagcacgc tagctggcct gtggacaggc ctgtgTTtg agagggggcg 1140
ggtgctggtg caactggtgc tggTgctTTt tctggtgctg ctgatgatga tgatgatgat 1200
gaggtaccg gttctgaagc cggtagtgat gagggttatg agtccttggg gggc 1254
```

<210> 26

<211> 564

<212> DNA

<213> *Arabidopsis thaliana*

<400> 26

```
tgtgattcat gccagagaaa aggcaacatc aatagaagaa atgagatgcc tcagaatcca 60
atcttggaag ttgagatctt tgatgtatgg gggattgatt ttatgggtcc attcccatct 120
tcatacggta ataaatatat actggTcgcc gtagactacg tatcaaagtg ggtcgaagct 180
attgctagtc ctaccaacga tgcaaaagtt gtgctgaagt tgttcaaaac cataatcttc 240
ccaagatttg gagttcccag gtagtaatc agtgatggcg gaaagcattt catcaacaag 300
gtttttgaga acctcttgaa gaagcatggg gtaaagcagg ttgagatctc caatagggag 360
ataaaaacaa ttctggaaaa gactgttggg attacaagga aagactggTc tgcaaaagcta 420
gatgatgcat tatgggctta caggacagct ttcaagacct ccataggtac aactcctTtC 480
aatcTtctct atggaaaatt atgtcatcta cccgttgagc tcgagtacaa agcaatgtgg 540
gcggtaaaac ttctgaactt tgac 564
```

<210> 27

<211> 600

<212> DNA

<213> *Arabidopsis thaliana*

<400> 27

```
cttgatgctg gtgtcatcta ccctatctct gatagtactt gggtttctcc agtgcattgc 60
gtccctaata agggtggaat gactgttgTc aaaaatgaaa aagatgaact gatccctact 120
```

```

agaactataa ctggatcatag aatgtgcata gattatagga agttgaacgc tgcattctagg 180
aaagatcatt ttccctttacc attcattgac caaatgcttg aacgtttggc taatcatcca 240
tattattgct ttcttgatgg atacagtggg ttctttcaaa taccaattca ccctaattgat 300
caagaaaaaa ccactttcac gtgtccttat ggaacttttg cctataaaaag aatgccattt 360
ggtttatgca atgctcctgc aacatttcag aggtgtatga cctctatatt ttcagactta 420
atcgaggaga tgggtggagg ttcatggac gatttttcgg tctatggccc ctctttctcc 480
tcatgtttgt tgaatcttgg cagggtattg actagggtgcg aagagacgaa tcttgttctc 540
aattgggaaa agtgtcattt catggtgaag gaaggcatag tattggacca caagatatca 600

```

<210> 28

<211> 192

<212> DNA

<213> Arabidopsis thaliana

<400> 28

```

tttgaaatca tgtgtgatgc atcagattac gcagtaggag ctgttctagg ccagaaaata 60
gacaagaagc ttcatgtcat atattacgcc agccgaacgt tggatgacgc tcagggaaga 120
tatgcaacaa ctgagaagga gcttctagct gttgtattcg catttgagaa gttcagaagc 180
tatttggttg ga 192

```

<210> 29

<211> 597

<212> DNA

<213> Pisum sativum

<400> 29

```

ttggatgcga gaatgattta cccgatctcg gatagtcctat gggtcagtcg cgtgcatgtg 60
gttccgaaga aagggtgaaa taccgtcatc cggaatgaca aggatgaatt gatccctacc 120
aaagttgcaa cggggtggag aatgtgtatt gaatataggc ggttgaatac cgcaactcga 180
aaggaccatt ttccactccc gtcatggat caaatgctgg aaagactctc cgggcaacaa 240
tactattggt tcttggatgg ctattccggg tataacccaa ttgccgttga cccggccgat 300
cattaaaaga cggctttcac atgtccggtt ggagtgttcg cataccgaaa aatgtccttt 360
gggttgtgca atgcaccgac gactttccaa cgatgtgtgc aagccatttt tgccgacctt 420
aatgagaaaa caatggaagt ctcatggat gacttctcgg tatttggtgt atcctttagt 480
ttatgcttgg caaacttgaa aacggtgctt gaaagatgtg tgaagaccaa tcttgtgctt 540
aattggtaga agtgccactt catggtgacc gaggggatag tgcttgacca taaagtc 597

```

<210> 30

<211> 192

<212> DNA

<213> Pisum sativum

<400> 30

```

tttgagctaa tgtgtgatgc gagcaactat gcaatcggag cgggtattagg ccaaagaaaa 60
gagaaaaaat ttcatgcgat acattacgca agtaaagttc ttaatgaggc tcaaattaac 120
tatgccacca ctgaaaaaga attacttgcg atagtgtatg cacttgaaaa gtttaggtct 180
tatcttatag gg 192

```

<210> 31

<211> 581

<212> DNA

<213> Pisum sativum

<400> 31

```
tgtgatagtt gccagagaag cgggtgggatt ggtaagagag acgagatgtc tctccaaaac 60
atccaagagg tcgaagtatt tgattgttgg ggcacgcgatt ttgtaggacc attccccct 120
cttatggtaa cgagtatatg cttgtcgag ttgaggcgat tgcctcacct cgggcggtatg 180
cgaaaacggt aataattttt ttgaagaaaa acatattttc cgttttcgga acccccggag 240
tgttgataag tgacggaggg tcacactttt gtaatgcacc gttggaaagc attttaaaac 300
attacggtgt atcacacaga gtggcaactc cgtatcacc acaggctaag ggacaagccg 360
aggtctctaa tegtgtgatt aagagaattc tcgaaaaaac tgtgtcaaat tcgaaaaaag 420
agtgttcaca aaaattggat gaagcggtat gggcataccg taccgccttt aaagctccaa 480
ttgggtcac tcttttcaa ttggtgtttg gtaaaacttg ccatttgccg gtcgaattgg 540
agcacaagc cttgtgggct ttgaaaatta ataattttga a 581
```

<210> 32

<211> 1362

<212> DNA

<213> Glycine max

<400> 32

```
atggcctcct gtaaacaccg agctgtgccc acaccgggg aagcgtccaa ctgggactct 60
tcacgtttca ctttcgagat tgcttggcac agataccagg atagcattca gctccggaac 120
atccttcag agaggaatgt agagcttggg ccagggatgt ttgatgagtt cctgcaggaa 180
ctccagaggc tcagatggga ccaggttctg acccgacttc cagagaagtg gattgatgtt 240
gctctggtga aggagtttta ctccaaccta tatgatccag aggaccacag tccgaagttt 300
tggagtgttc gaggacaggt tgtgagattt gatgctgaga cgattaatga tttcctcgac 360
accccggtca tcttggcaga gggagaggat tatccagcct actctcagta cctcagcact 420
cctccagacc atgatgccat cctttccgct ctgtgtactc cagggggacg atttgttctg 480
aatgttgata gtgccccctg gaagctgctg cggaaggatc tgatgacgct cgcgcagaca 540
tggagtgtgc tctcttattt taaccttgca ctgacttttc acacttctga tattaatgtt 600
gacagggccc gactcaatta tggcttgggtg atgaagatgg acctggacgt gggcagcctc 660
atctctcttt agatcagtca gatcgcccag tccatcactt ccaggcttgg gttcccagcg 720
ttgatcacia cactgtgtga gattcagggg gttgtctctg ataccctgat ttttgagtca 780
ctcagtcctg tgatcaacct tgctacatt aagaagaact gctggaaccc tgccgatoca 840
tctatcacat ttcaggggac ccgcgcacg cgcaccagag cttcggcgct ggcatctgag 900
gctcctcttc catccagca tcttctcag cttttttccc agtgaccacg gcctccactt 960
ctatccacct cagcacctcc atacatgcat ggacagatgc tcaggtcctt gtaccagggg 1020
cagcagatca tcattcagaa cctgtatcga ttgtccctac atttgcagat ggatctgcca 1080
ctcatgactc cggaggccta tgcgcagcag gtcgcctagc taggagacca gccctccact 1140
gacagggggg aagagccttc tggagccgct gctactgagg atcctgccgt tgatgaagac 1200
ctcatagctg acttggctgg cgtgattgg agcccatggg cagacttggg cagaggcagc 1260
tgatcttatg cttaaatgtt ttcttttata ttatgtttgt gttctctttt atgttttatg 1320
ttatgttttt atgtagtctg tttggtaatt aaaaagaggt ag 1362
```

<210> 33

<211> 192

<212> DNA

<213> Glycine max

<400> 33

```
tttgagttga tgtgtgacgc gacgagattat gctataggtg cagtgccttg acaaaggaag 60
```

ggcaaaatTTT tTcatgctat ctactacgcc agcaaagTTT taaatgatgc acaggTTaac 120

tatgctacca cagaaaaaga aatgTtgGca attgTttatg cacttgaaaa gttcaaattct 180  
tatttggtag gc 192

<210> 34

<211> 597

<212> DNA

<213> Glycine max

<400> 34

ttggaggTtg ggctcatata ccccatctct gacaacgctt gggtaagccc agtacaggTg 60  
gttcccaaga aaggTggaat gacagTgGta caaaatgaga ggaatgactt gataccaaca 120  
cgaacagTca ctggctggcg aatgtgtatt gactatcaca agctgaatga agctacacgg 180  
aaggaccatt tccccttacc tttcatggat cagatgctgg agagactTgc agggcaggca 240  
tactactgtt tcttgatgg atactcgGga tacaaccaga tgcgggtaga ccccatagat 300  
caggagaaga cggTctttac atgccccttt ggcgtctttg cttacagaag gatgtcattc 360  
gggttatgta atgtaccagc cacatttcag aggtgcatgc tgaccatttt ttcagacatg 420  
gtggagaaaa gcatcgaggt atttatggac gacttctcgg tttttggacc ctcatttgac 480  
agctgtttga ggaacctaga aatggtactt cagaggtgcg tagagactaa cttggtactg 540  
aattgggaaa agtgtcattt tatggttcga gagggcatag tcctaggcca caagatc 597

<210> 35

<211> 603

<212> DNA

<213> Glycine max

<400> 35

tgtgataaat gtcagagaac aagggggata tctcgaagaa atgagatgcc tttgcagaat 60  
atcatggagg tagagattct tgatagtTtg ggcatagact tcatggggcc tcttccttca 120  
tcatacagga atgtctacat cttggtagct gtggattacg tctccaaatg ggtggaagcc 180  
atagccacgc tgaaggacga tgccaggGta gtgatcaaat ttctgaagaa gaacattttt 240  
tccattttcg gagtcccacg agccttgatt agtgatgggg gaacgcactt ctgcaacaat 300  
cagttgaaga aagtcctgga gcactataat gtccgacaca aggtggccac acctatcac 360  
actcagacga atggccaagc agaaatttct aacagggagc tcaagcgaat cctggaaaag 420  
acagttgcat catcaagaaa ggattgggcc ttgaagctcg atgatactct ctgggcctat 480  
aggacagcgt tcaagactcc catcggtta tcaccatttc agctagtata tgggaaggca 540  
tgtcatttac cagtagagct ggagcacaag gcatattggg ctctcaagtt gctcaacttt 600  
gac 603

<210> 36

<211> 150

<212> DNA

<213> Glycine max

<400> 36

cctaaaatac tacaacgaca tgattggtgt tttaggataa ttgactgaaa aacctattat 60  
caatttggcg ccgttgccaa ttgggtgttt gtttggtaca tttgagattt cagacttgct 120  
tagatcaagt tctttttcaa tttctttttt 150

<210> 37

<211> 11  
<212> DNA  
<213> Glycine max

<400> 37  
tggcgccggtt g

11

<210> 38  
<211> 15  
<212> DNA  
<213> Glycine max

<400> 38  
tggcgccggtt gccgg

15

<210> 39  
<211> 27  
<212> DNA  
<213> Glycine max

<400> 39  
tttttggcgc cgttgtcggg gattttg

27

<210> 40  
<211> 9  
<212> DNA  
<213> Glycine max

<400> 40  
tttggggga

9

<210> 41  
<211> 16  
<212> DNA  
<213> Glycine max

<400> 41  
tttaatttgg gggatt

16